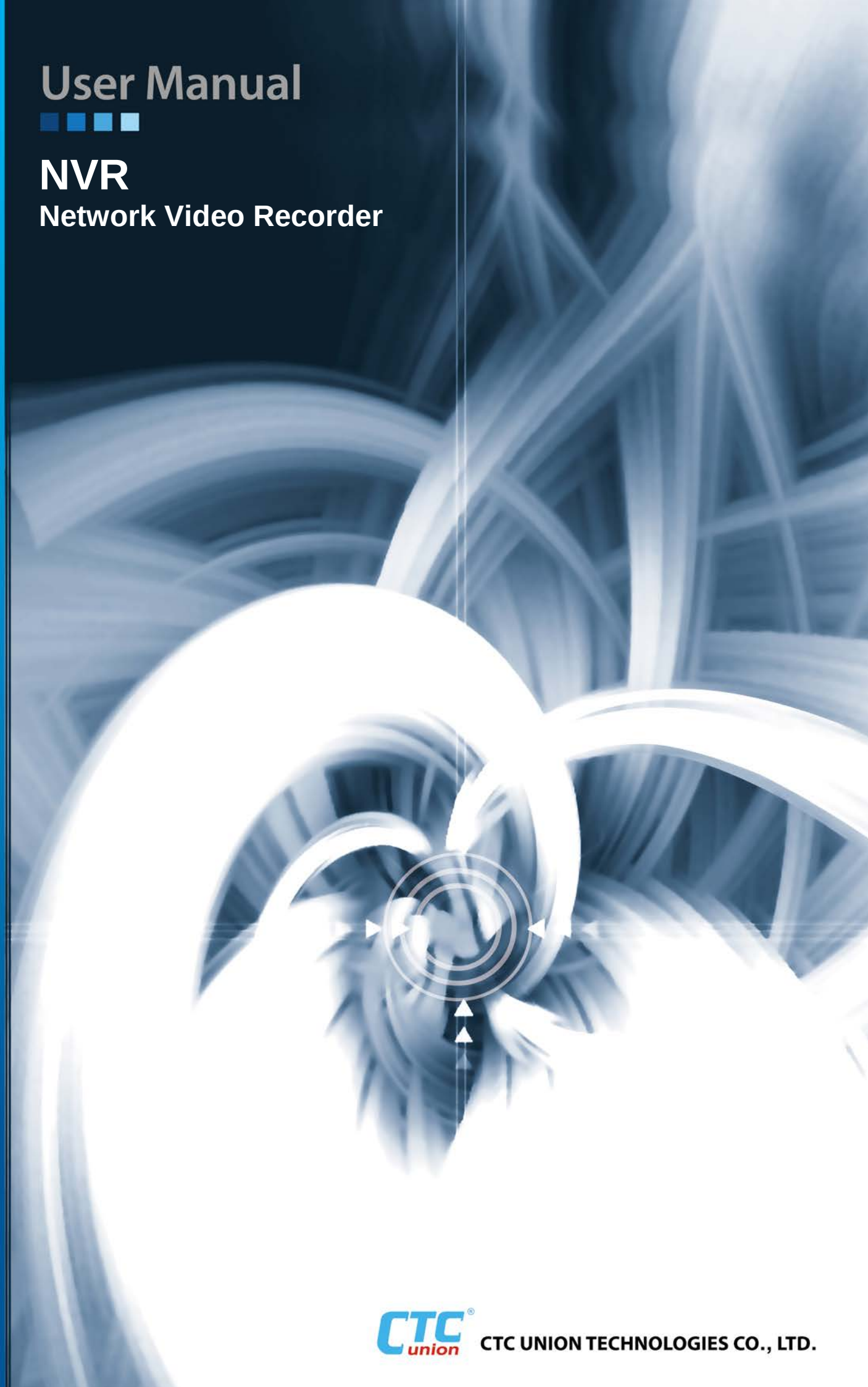
User Manual

NVR

Network Video Recorder



CTC UNION TECHNOLOGIES CO., LTD.

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This device complies with EMC directive of the European Community and meets or exceeds the following technical standard. EN 55022 - Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment. This device complies with CISPR Class A.

WARNING:

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

CE NOTICE:

Marking by the symbol CE indicates compliance of this equipment to the EMC directive of the European Community. Such marking is indicative that this equipment meets or exceeds the following technical standards: EN 55022:1994/A1:1995/A2:1997 Class A and EN61000-3-2:1995, EN61000-3-3:1995 and EN50082-1:1997

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NVR

Network Video Software User Manual.

User Manual
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This document is the current official release manual. Please check CTC Union's website for any updated manual or contact us by E-mail at sales@ctcu.com. Please address any comments for improving this manual or to point out omissions or errors to marketing@ctcu.com. Thank you.

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Chapter 1. Introduction

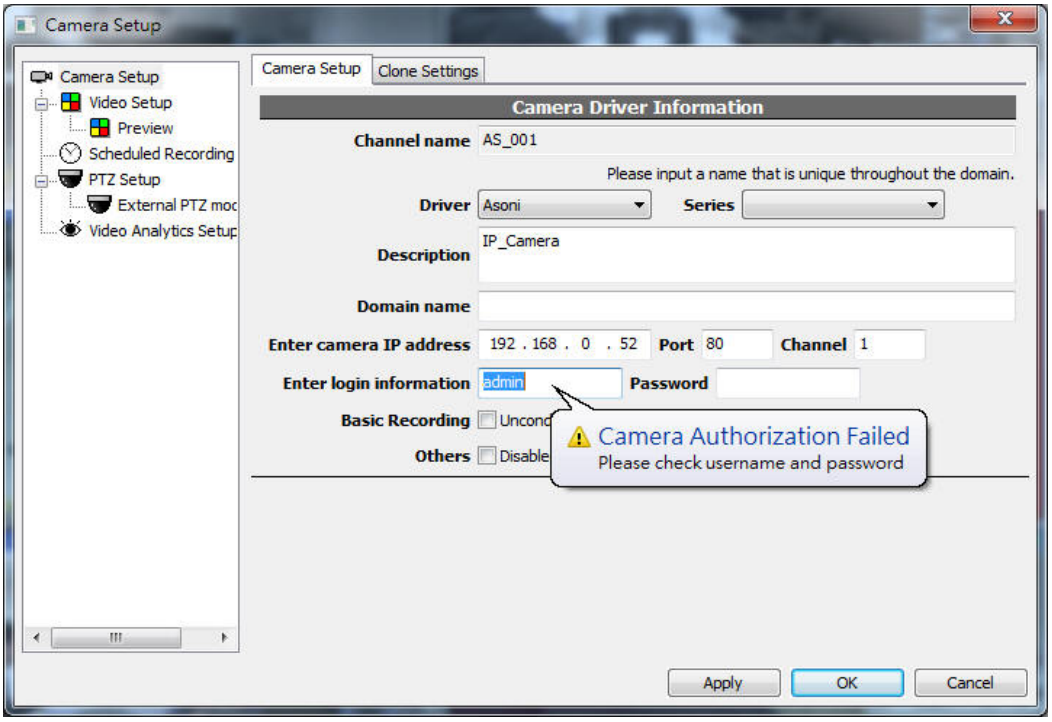
Thank you for purchasing the NVR surveillance system developed by CTC Union Technologies Company, Limited. **CTC UNION NVR Server ™** is a surveillance system that delivers the most comprehensive security architecture for enterprise level security operation.
NVR provides cost-effective scalability to support thousands of cameras and sensors.
Its distributed management technology and modular architecture help reduce the total cost of ownership and streamline security operations for today's enterprise. For a better understanding, please read this manual before operating the NVR.

1.1 What's New?

1. New & simplified play control

2. Import/Export System Configurations

3. Authentication failure message



1.2 CTC Union NVR Feature Matrix

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Function Level 1	Standard	Professional	Intelligent
Maximum concurrent recording channels per server	Depend on actual licensed channels		
Maximum number of concurrent login users	3	Max [*3]	Max [*3]
Maximum times of fast playback	32x	512x	512x
Maximum number of concurrent playback sessions per server	4	Max [*3]	Max [*3]
Maximum times of fast playback	32	512	512
Maximum concurrent live view per monitor	25		
Support multiple monitor: Maximum number of monitors supported	6		
Maximum number of TCP incoming connection per server [*4]	150		
Recording can span into multiple disk volumes. No arbitrary recording limits.	Single directory only	v	v
Time-bar display (1)Storage space (2)Activity amount(3)Event: Graphically displays storage space, activity amount, and events on the time-bar.	Standard and event mode only	v	v
Sophisticated and comprehensive permission control: Using groups and hierarchical GUI to represent permissions. Allows permission control on all or specific channels regarding to live, playback, operation, and setup	Max 3 users and 3 groups	v	v
Optional display of meta-information, including: timestamp, bps, Fps, playing status, recording status.	Timestamp only	v	vv
Function Level 2	**Standard**	**Professional**	**Intelligent**
NEW! Centrally Management Station architecture, providing management features with integrated security across multiple NVR servers.	n/a	v	v
NEW! 3GPP mobile video streaming	n/a	v	v
Server-side console channel viewing layout configuration. New user don't have to configure locally after proper configuration.	n/a	v	v
PTZ advanced operations: preset and preset go-to [*2]	n/a	v	v
MPEG-4/H.264 frame-by-frame backward playback	n/a	v	v
Multi-channel synchronized playback.	n/a	v	v

Audio/video synchronized export to AVI file: Export now has the option to export footage to portable AVI format. Also allow user to opt to add the raw recorded timestamp overlay as AVI subtitle. [*1]	n/a	v	v
Shared logical resource tree. Users can configure an common arbitrary system tree structures/order with heterogeneous objects.	n/a	v	v
Tour on console	n/a	v	v
Administrators can assign or retrieve layouts of other remote consoles	n/a	v	v
Advanced alarm flow processing: Allow multiple operators to coordinate and process active and in-progress alarms.	n/a	v	v
Trigger/Action Features	**Standard**	**Professional**	**Intelligent**
Flexible rule engine for triggering and actions • System trigger condition for: system start, abnormal restart, system config change, any channel config change, any video loss • Channel trigger condition for: DI/DO on/off[*2], video loss, recording started, recording stopped, disabled, enabled, alarm triggered, alarm acknowledged	v		
Scheduled trigger condition for: daily, weekly, fixed interval	v		
Email notification action (text/html/multilingual)	v		
Email notification with snapshot aggregating multiple channels in split-view	n/a	v	v
FTP upload snapshot aggregating multiple channels in split-view	n/a	v	v
Channel control action for: recording, output DO[*2], and move to camera preset	Only support recording	v	v
eMAP/DI/DO Features	**Standard**	**Professional**	**Intelligent**
E-Map: Allows user to edit map and choose arbitrary location and angle of a camera icon, which reflects camera status in real-time. Support inter-map linking/navigation/browsing. Allows viewing/editing in remote site transparently. JPEG and BMP backgrounds are supported, also with arbitrary resizing and rotating.	n/a	v	v
DI/DO on E-Map[*2], reflecting real-time status and provides direct GUI control. Support several predefined stereo-type icons.	n/a	v	v
NEW! External-map integration (including Google Map)	n/a	v	v
DI/DO on User-tree in arbitrary position[*2], reflecting real-time status and provide direct GUI control.	Status visible on standard tree. No DO control.	v	v
Intelligent Video Content Analysis Features	**Standard**	**Professional**	**Intelligent**
Software-based motion detection. Allows multiple polygon detection regions.	n/a	v	v
Tamper detection.	n/a	v	v

Double-tripwire directional object counting.	n/a	n/a	v
Missing object and foreign object alarm/detection.	n/a	n/a	v
Double-tripwire alarm	n/a	n/a	v
Intelligent video statistics report. View counting in various scale (per minute, per hour, per day)	n/a	n/a	v
Basic Features	**Standard**	**Professional**	**Intelligent**
Architectural advantages: • Disk-access optimized to reduce read/write time. Designed to handle huge multi-mega pixel data streams and concurrent number of playback clients. • Allows the viewing frame-rate to be different from the actual/recorded frame-rate, and automatically detects available computing resource. • Support multi-core processors to boost your system performance. • Remote control through Internet Explorer. Identical user-interface with local interface. (Can opt to install client software) • Audio-video synchronized recording and playback • Most configuration change can take effect immediately without having to restart system, as well as the change can be opted to revert to previous state. • Support many brands of network cameras simultaneously existing in the system. Also support any RTSP-based video source. Support M-JPEG, MPEG-4, H.264 and various audio codec.		v	
Basic video player features: • Seamless integration of live and playback interface. Live and playback is tightly integrated. User can instantly play backwardly from live. • Digital PTZ on both live and playback mode. • Snapshot JPEG • PTZ basic operations: on-screen Pan-Tilt-Zoom[*2]		v	

Local/Remote console GUI features: • Fully multilingual enabled. • Provides persistent per-user settings of multi-page channel viewing layout. • Provide options to remember password and automatic login. • Provide shortcut script to automatic connect to specified remote host. • Automatically and continuously attempt to reconnect upon connection failure. • Alarm window flashing. Can opt to switch to 1x1 (popup) • Full-screen viewing. Can opt to lock keyboard/mouse. • System events/viewer: System start, configuration change, or camera alarms.	v
Recording mode: • Flexible scheduled recording and weekly graphical interface. • Simple alarm functions. Configurable pre-alarm recording buffer to support at least 30 seconds. • Event recording: Allows configuration of event-triggered recording. Also allows configuration of pre-record and post-record periods. • Motion detection: Visually configure motion detection regions and visually verifies configuration result. [*2]	v
Engine program features: • Run as Windows service. Engine can be configured to auto-start recording even without user login nor any GUI activated. • Prevent non-administrative Windows users from shutting down the engine. • Software watchdog. Automatically restart service upon unknown failure. • Embedded web server. Don't need to install additional web server.	v
Export footage (XGV format): • Export options: Single channel to single file, single channel to multi-file (size spanned), multi-channel to single file (combined), multi-channel to multi-file (channel combined, file spanned). • Efficient IO with resume able (from interrupt, if any) footage download transfer over network. • Single file can contain video of multiple channels. • Exported file can be appended multiple times later.	v

Activity analysis and statistics: Records activity (including motion detection) into a scalar value to indicate the amount of activity occurred at a certain period of time. This allows user to quickly identify the time of interest to view.	v
Multiple configuration sets for each channel. A configuration set of a channel specifies channel-specific parameters, such as FPS, quality, etc. A configuration set can also be "inherited" from other configuration set. The system can be configured to use different configuration set at different schedule or condition.	v
Storage report: • Provides a comprehensive report about the recorded storage in various scales (day, hour, minute). • Also displays the storage space, statistics of activity, and related events side-by-side in real-time. This allow user to quickly identify storage bottleneck and the location of meaningful data	v
User calculator tool: • Storage space calculator: Provides easy-to-use tool to let user calculate the required video storage space • Calculator of field-of-view, resolution for camera lenses: Provides easy-to-use tool to let user calculate what types of lenses to choose by computing field-of-view, shooting distance, visual coverage, and resolution.	v

Remarks

- [*1] Not all codec are supported. For more information please refer to here
- [*2] Only some selected drivers (hardware models) are supported. For more information please refer to here
- [*3] "Max" means the system places no arbitrary limitation. However the actual limitation may come from other limiting factors such as server CPU, network, disk I/O throughput, or memory resource.
- [*4] Number of TCP connection required are calculated as follows: If N is the number of active user sessions, and M is the total number of video connection requested, then the required number of TCP connection is N*3 + M. Local connection is also accounted. Using connections exceeding this number is not recommended, as connection request will simply not be accepted by server.

1.3 Camera Supporting Matrix

Note: Different versions or branches may have different feature support. If you are unsure, please contact us to clarify the actual support of specific camera features.

Vendor	Connectivity	Video	Audio	Supported Features	Supported Model
AXIS	HTTP	H.264, M-JPEG, RTSP	RTSP	• Video parameters setup • Motion event/setup • Pan-Tilt-Zoom with 8 directions and free mode. • Preset set/recall. • Focus control. • Digital input/output. • NEW! Audio out (two-way).	M1011, M1011-W, M1031-W, M1054, M1103, M1104, M1113, M1114, 1311, P1343, P1344, P1346, P1347, P1343-E, P1344-E, P1346-E, P1347-E, Q1755, Q1755-E, 211W, 221, M3011, M3014, M3113-R, M3114-R, M3203, M3204, M3203-V, M3204-V, P3343, P3344, P3346, P3343-V, P3344-V, P3346-V, P3343-VE, P3344-VE, P3346-VE, P3301, P3304, P3301-V, P3304-V, 209FD, 216FD, 216FD-V, 216MFD, 216MFD-V, 212PTZ, 212PTZ-V, 214PTZ, 215PTZ, 215PTZ-E, P5512, P5522, P5512-E, P5522-E, Indoor, P5532, P5534, P5532-E, P5534-E, Q6034, Q6032-E, Q6034-E, Q1910, Q1921, Q1910-E, Q1921-E, 233D, Q6034, Q6032-E, Q6034-E, 241S, 243SA, 247S, Q7401, M7001, M7001, 240Q, 241Q, 241QA, 243Q Blade, Q7406 Blade, Q7404, 291 1U, Q7900
Arecont Vision	AV2000 2.5.37	M-JPEG, H.264	---	• Video parameters setup	AV10005, AV2805, AV1305, AV1355, AV1300, AV1310, AV2105, AV2155, AV2100, AV2110, AV3105, AV3155, AV3100, AV3110, AV5105, AV5155, AV5100, AV5110, AV3130, AV3135, AV8185DN, AV8365DN, AV8185, AV8180, AV8365, AV8360, AV1315, AV2815, AV1325, AV2825,
StarDot	HTTP	M-JPEG, H.264, RTSP	---	• Video parameters setup • Motion event/setup • Auto discovery. • Digital input/output	ExpressXL, NetCamXL, NetCamSC, NetCamSCD

Vendor	Connectivity	Video	Audio	Supported Features	Supported Model
IQinVision	HTTP	M-JPEG	---	• Motion event.	IQ755, IQ753
VIVOTEK	VNDP-080610	MPEG-4, VV_H263, M-JPEG	AAC, AMR	• Motion event/setup. • Pan-Tilt-Zoom with 4 directions.	IP8362, IP8162P, IP8162, IP8151P, IP8151, IP7361, IP7142, IP8332, IP8330, IP7330, IP8161, IP7161, IP7160, IP7154, IP7153, IP7130, IP8132, IP7134, IP7133, PZ71x2, PZ71x1, PZ7152, PZ7151, PZ7132, PZ7131, PT7137, PT7135, SD73x3, SD7151, SD81x1, FD8361, FD8361L, FD7141, FD8161, FD7132, FD7131, MD7560, MD7530, FD8134V, FD8133V, FD8134, FD8133, IP8352, FE8171V, SD8362E, SD83x3E, SD83x2E, SD83x1E, FD8362E, FD8362, FD8162,
SONY	HTTP	MPEG-4, M-JPEG, H.264	G.711 G.726	• Motion event/ setup.[*1] • Pan-Tilt-Zoom with 8 directions.	SNC-RZ50N, SNC-RZ30, SNC-P5, SNC-RX550, SNC-P1
ACTi	SDK-10000	MPEG-4	PCM	• Video parameters setup • Motion event/setup. • Pan-Tilt-Zoom with 8 directions. • Preset set/recall. • Digital input/output.	ACM-5001, ACM-5601, ACM-5611, KCM-5111, KCM-5211, KCM-5311, TCM-5311, TCM-5601, TCM-5611, ACM-1231, ACM-1431, TCM-1231, TCM-1511, ACM-4001, ACM-4201, TCM-4201, ACM-3001, ACM-3011, ACM-3401, ACM-3411, ACM-3511, ACM-3601, ACM-3701, ACM-7411, KCM-7111, KCM-7211, TCM-3401, TCM-3411, TCM-3511, TCM-7411, TCM-7811, ACM-8511, CAM-6610, CAM-6630, ACD-2000Q, ACD-2100, ACD-2200, ACD-2300, ACD-2400, TCD-2100, TCD-2500,
Brickcom NEW!	HTTP	H.264, RTSP	RTSP	• Video parameters setup • Dual (multiple) streaming. • NEW!Audio out (two-way). • Digital input/output	CB-102A Series, CB-101A Series, FB-300A Series, FB-130N Series, FB-130A Series, FB-100A Series, FD-130A Series, FD-100A Series, MD-100A Series, OSD-040 36x Series, PZ-040 12x Series, VD-130A Series, VD-100A Series

Vendor	Connectivity	Video	Audio	Supported Features	Supported Model
Panasonic NEW!	HTTP	H.264, RTSP	RTSP	• Video parameters setup • Pan-Tilt with 4 directions and click-move-to. • Preset set/recall. • Focus control. • Dual (multiple) streaming.	**BL-C2xx:** BL-C230A/C210A **BL-C1xx:** BL-C121A/C101A, C160A/C140A,C131A/C111A **BB-HCM7xx:** BB-HCM701A/HCM705A, HCM735A/HCM715A **BB-HCM5xx:** BB-HCM547A/HCM527A/ HCM581A/HCM580A/HCM531A/HCM511A/HCM515A
PIXORD NEW!	HTTP	H.264, RTSP	RTSP	• Video parameters setup • Digital input/output.	PD636, PD634, PB630(W), PD637, P600, P606(W), PD614, P-415M, P-416(W), P-413, P-400(W), P-426, P-412, P-405(W),PL621, P-423, P-428, P-465, P463A, P463H, P600E, D634E, P-400 PoE, P-426 PoE, P-413 PoE, PL621E, P-423 PoE, PV6901, P-1401 (W,PoE), P-4000
Truen	HTTP	H.264, RTSP	RTSP	• Video parameters setup • Digital input/output. • Motion event and setup. • Dual (multiple) streaming	TCAM-330, TCAM-330W, TCAM-570-X10S, TCAM-570-X18H, TCAM-7300, TCAM-6300, TCAM-540-X10S, TCAM-530, TCAM-540-X18H, TCAM-531, TCAM-531BIR, TCAM-551, TCAM-551IR, TCAM-351, TCAM-351IR, TCAM-370-X10, TCAM-370-X26/36, TCAM-370-X27/X33/X37, TCS-2000, TCS-400, TCS-300, TCS-200
JVC (V.Networks)	HTTP	M-JPEG	---	• Pan-Tilt-Zoom with 8 directions and click-move-to. • Preset set/recall.	C30U, C625U, C655U, VN-V685U, VN-686U, VN-686BU
LILIN	HTTP	H.264, M-JPEG, RTSP	RTSP	• Pan-Tilt-Zoom with 8 directions. • Preset set/recall.	IPD552EX, IPR454, IPR458, IPS203, IPS212, IPS303, IPS312, IPS125, IPS130, IPS135, IPS025, IPS030, IPS035, IPG012ES, IPD112ESX, IPR312SX, IPR614ES, IPR618ES, IPR414ESX, IPR418ESX, IPR712S, VS012, BTE02S,

Vendor	Connectivity	Video	Audio	Supported Features	Supported Model
ASONI	HTTP	H.264, M-JPEG, RTSP	RTSP	• Video parameters setup • Motion event and setup • Digital input/output. • Pan-Tilt with 4 directions. • Preset set/recall. • Focus control.	CAM613M, CAM616M(PoE), CAM619M(PoE), CAM619MIR(PoE), CAM620A(PoE), CAM620B(PoE), CAM624M(PoE), CAM627(PoE), CAM636M(PoE), CAM628M(PoE), CAM629(PoE), CAM614(W,PoE), CAM638(W), CAM639(W), CAM634M(W), CAM615(PoE), CAM646MIR(PoE), CAM635(PoE), CAM640, CAM641, CAM630, CAM630A(PoE), CAM630B(PoE), CAM633, CAM633A(PoE), CAM633B(PoE), CAM647, CAM647A(PoE), CAM647B(PoE), CAM416(PoE), CAM419(PoE), CAM419IR(PoE), CAM422M(PoE), CAM428M-PoE, CAM436(PoE), CAM439(W), CAM441, CAM415(PoE), CAM424(PoE), CAM425(PoE), CAM426(PoE), CAM427(PoE), CAM428(PoE), CAM450, CAM413(PoE,W), CAM417(PoE), CAM418(PoE), CAM435(PoE), CAM437(PoE), CAM438(W), CAM415(PoE), CAM419(PoE), CAM419IR(PoE), CAM435(PoE), CAM436(PoE), CAM437(PoE), CAM420A(PoE), CAM420B(PoE), CAM450, CAM451, CAM451A(PoE), CAM451B(PoE), SVR640, SVR611, SVR610, SVR410, SVR440, SVR411,
ZAVIO	HTTP	RTSP, MPEG-4, M-JPEG	RTSP, G.711	• Video parameters setup • Pan-Tilt-Zoom (8 directions) • Preset set/recall. • Focus control. • Digital input/output.	F210A, F312A, F3100, F3105, F3101, F3106, F7110, F7115, B5110, F531E, F731E, D5110, D5111, D7110, M511E, M511W, P5110, P5115, V111T

Vendor	Connectivity	Video	Audio	Supported Features	Supported Model
CTC-U	HTTP	H.264, RTSP	RTSP	• Pan-Tilt zoom (8 directions) • Preset set/recall. • Focus control. • Digital input/output.	DVS-8501E, DVS-8501E-H, DVS-8504E-FD, DVS-8504E-H, DVS-8301, IPCAM-8318P, IPCAM-8318F, IPCAM-8309D, IPCAM-8309FW, IPCAM-8309F,
EtroVision	EtroSDK 1.31	MPEG-4, H.264	---	• Video parameters setup • Pan-Tilt-Zoom with 4 directions • Preset set/recall • Focus control	EV6150 Series, EV6150A Series, EV6151A, EV6153A, EV6156A, EV6551A Series, EV6551A-DI, EV6552A, EV6552R, EV8150A, EV8180F, EV8180U, EV8780U, EV8580U Series, EV8580F, EV8180A, EV8580A Series, EV8780A, EV8781A, EV8781D, EV8781F, EV8781U Series, EV6353A Series, EV6355A Series, EV6356A Series, EV6750, EV6250A Series, EV3150A, EV3151, EV3151A,
BOSCH VideoJet	HTTP	M-JPEG	---	• Pan-Tilt with 8 directions	VideoJet-10

RTSP Supporting Information

Supported Video Codecs	MPEG-4, M-JPEG, H.264
Supported Audio Codecs	G.711, AAC, AMR, G.726, MPEG audio
Supported Transport Modes	UDP, TCP, HTTP

Remarks

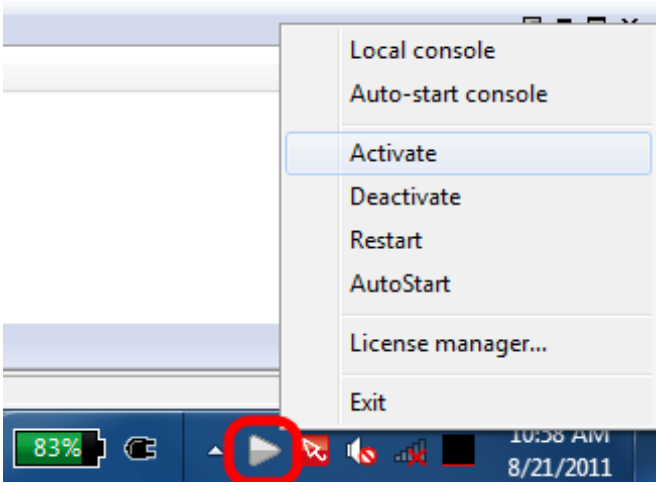
- VV_H263: A variation of proprietary H263 developed apparently by VIVOTEKV_H263">.
- [*1] Not all models are supported. Known supported models are RZ50, RX550

AVI-Export Supporting Information

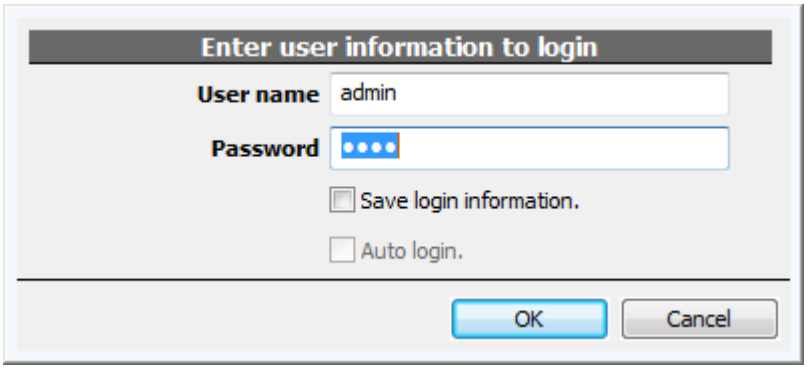
Supported Video Codecs	MPEG-4, M-JPEG, H.264
Supported Audio Codecs	G.711, PCM

1.4 Getting Started with CTC Union NVR

Installation and Initialization
The installer will install a Windows service. You can manage it with our organizer, a triangle in Windows task-bar. When the triangle is green, you are good to go.

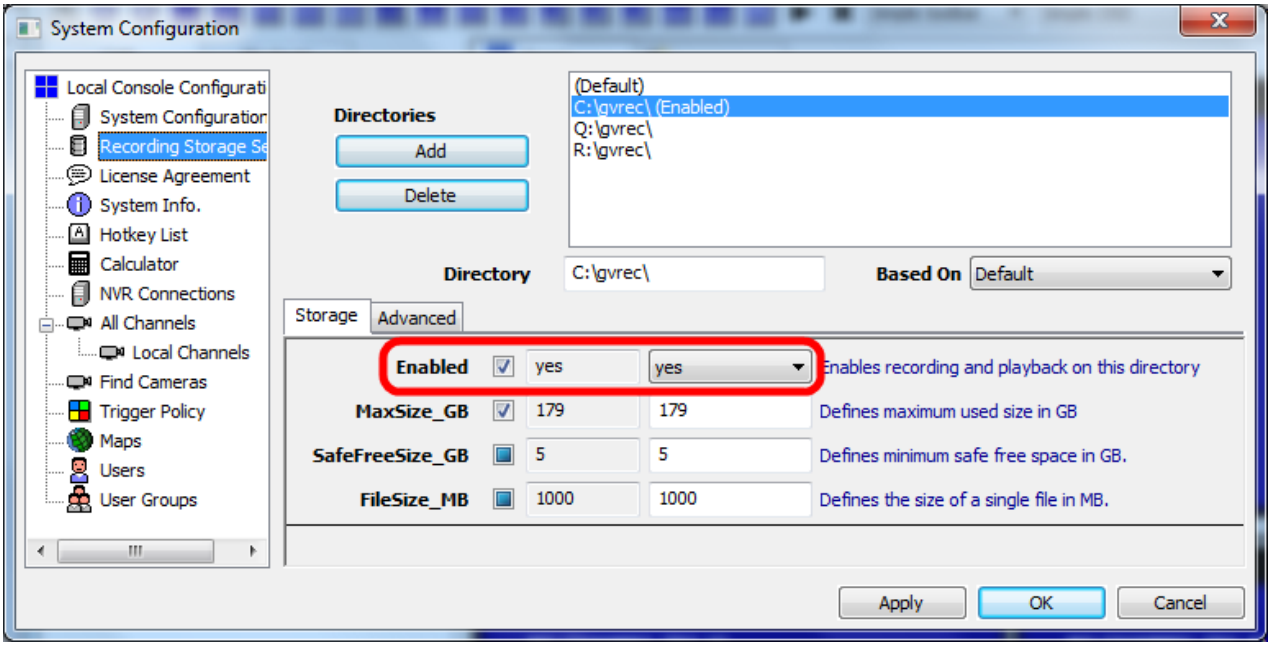


Invoke the console to interact with the server. Default account/password is **admin/1234.**

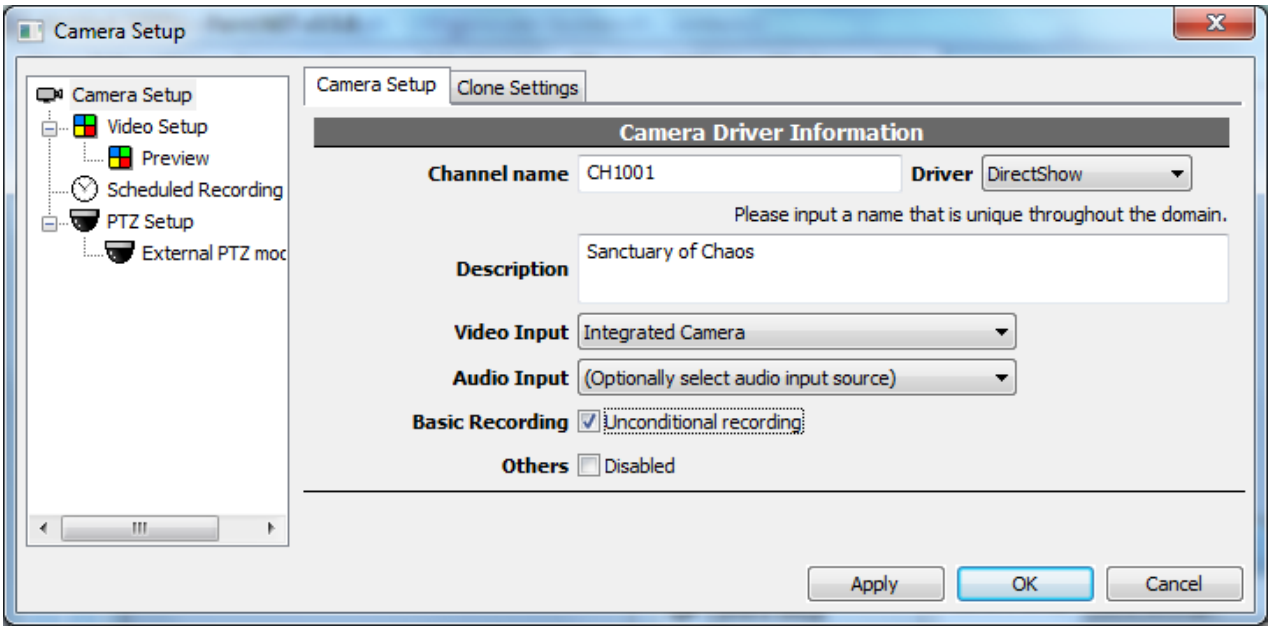


Minimum Configuration

The first thing you need to do is **configuring storage**. All available drives are listed automatically. Just **enable** the drive you want to use to store recorded data. You may want to change **"MaxSize_GB"** if the drive is not dedicated to recording. Everything else should be left untouched.



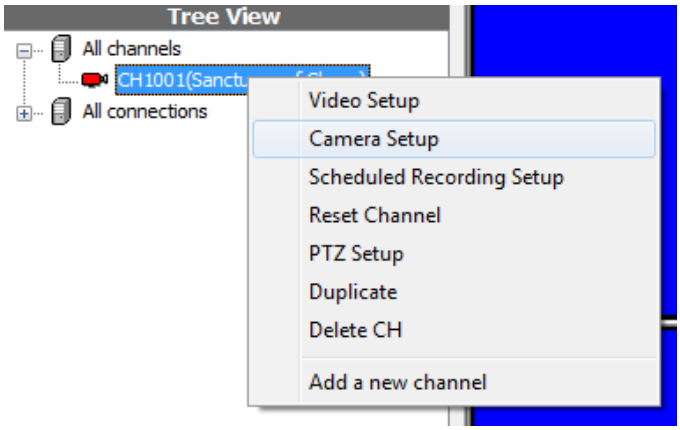
The second to do is **adding a camera**. Channel name is an unique identification associated with recorded data and events. It can't change in the future so name it carefully. Put additional information in description instead. Select driver **DirectShow** for webcam. Check **"unconditional recording"** for 24x7 recording.



Okay. Now the setup is done and the server is recording. The server is running as long as the PC is on, even before any user logged in Windows.

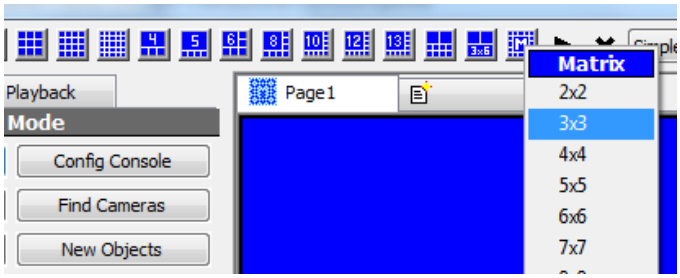
Things You May Want To Know

Configure camera, and many things as well, with right click menu.

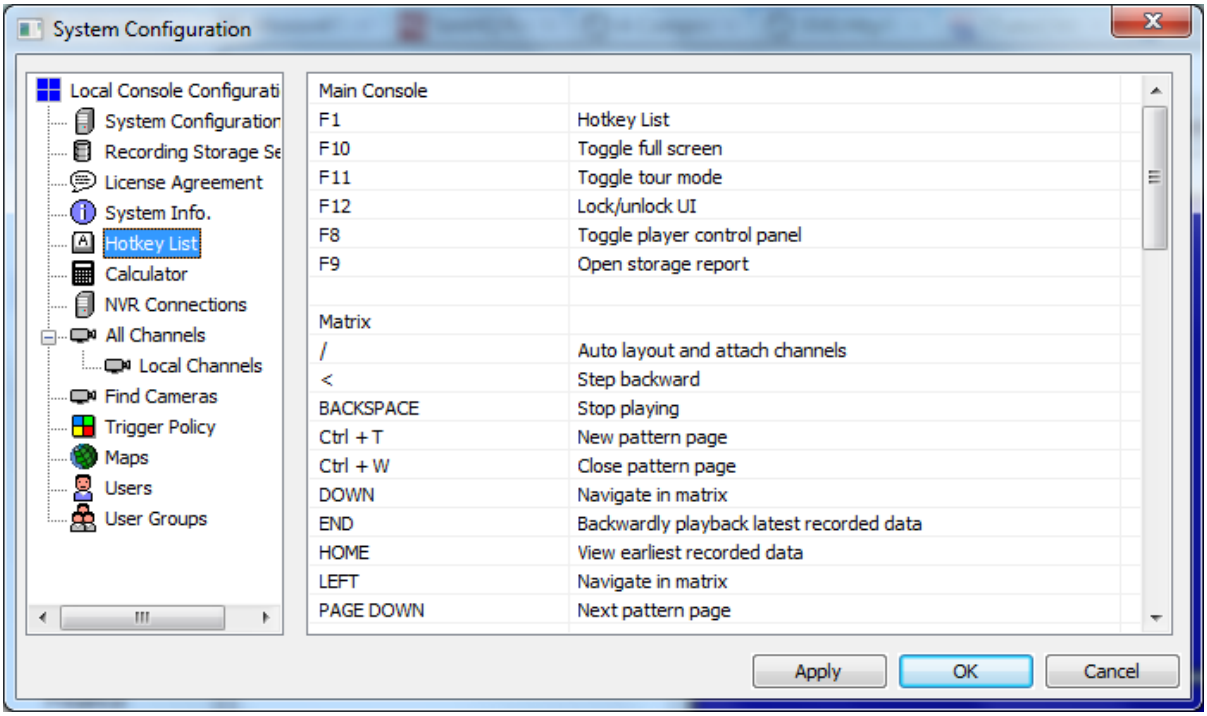


Cameras, maps, and some objects can be dragged. Experiment with various operations with mouse drag & drop

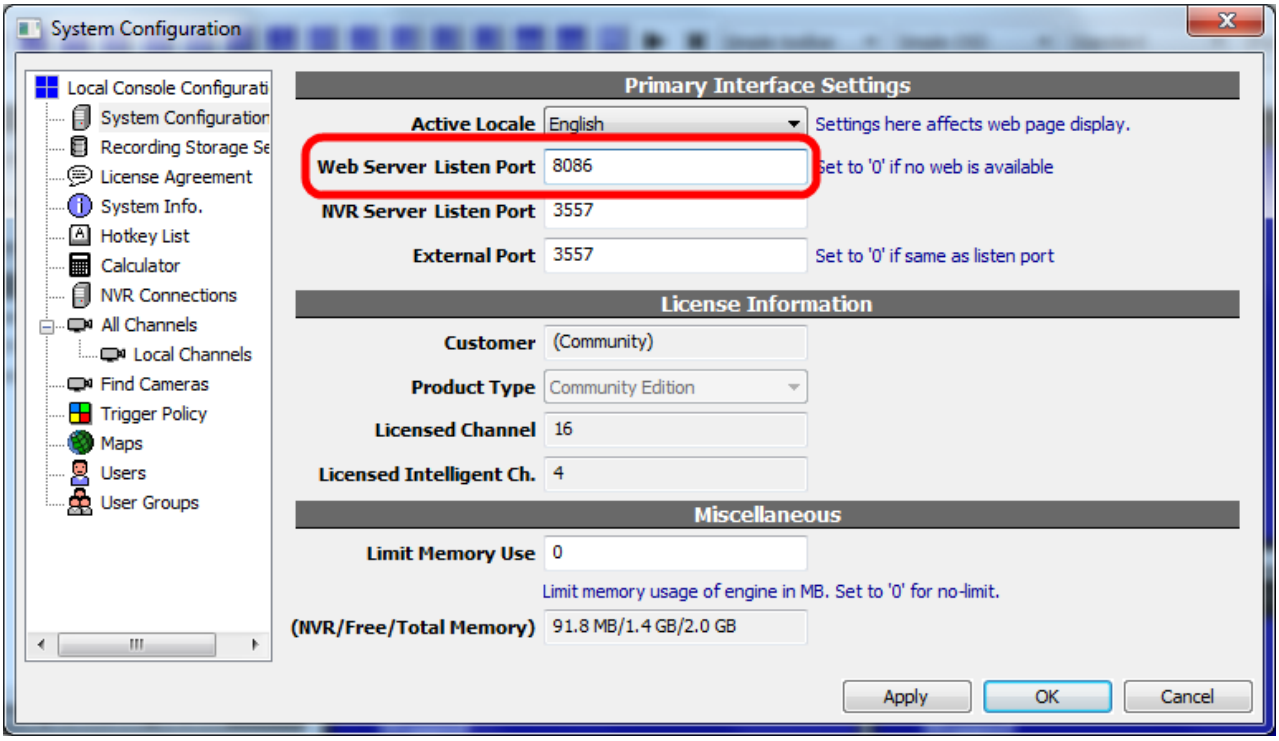
Use matrix mode for better performance. Decoding massive channels with massive resolution consumes hell lot of computing power. Use simplified player (no OSD, no aspect control, no zoom, no playback, no audio) for better performance.



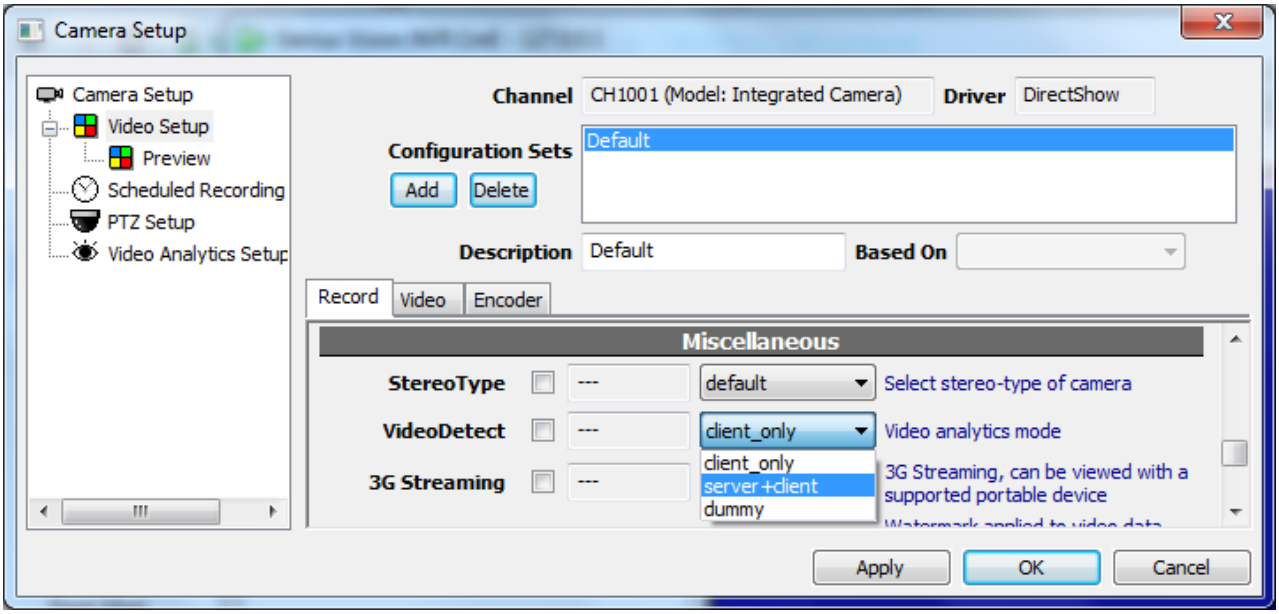
List all hot-keys.



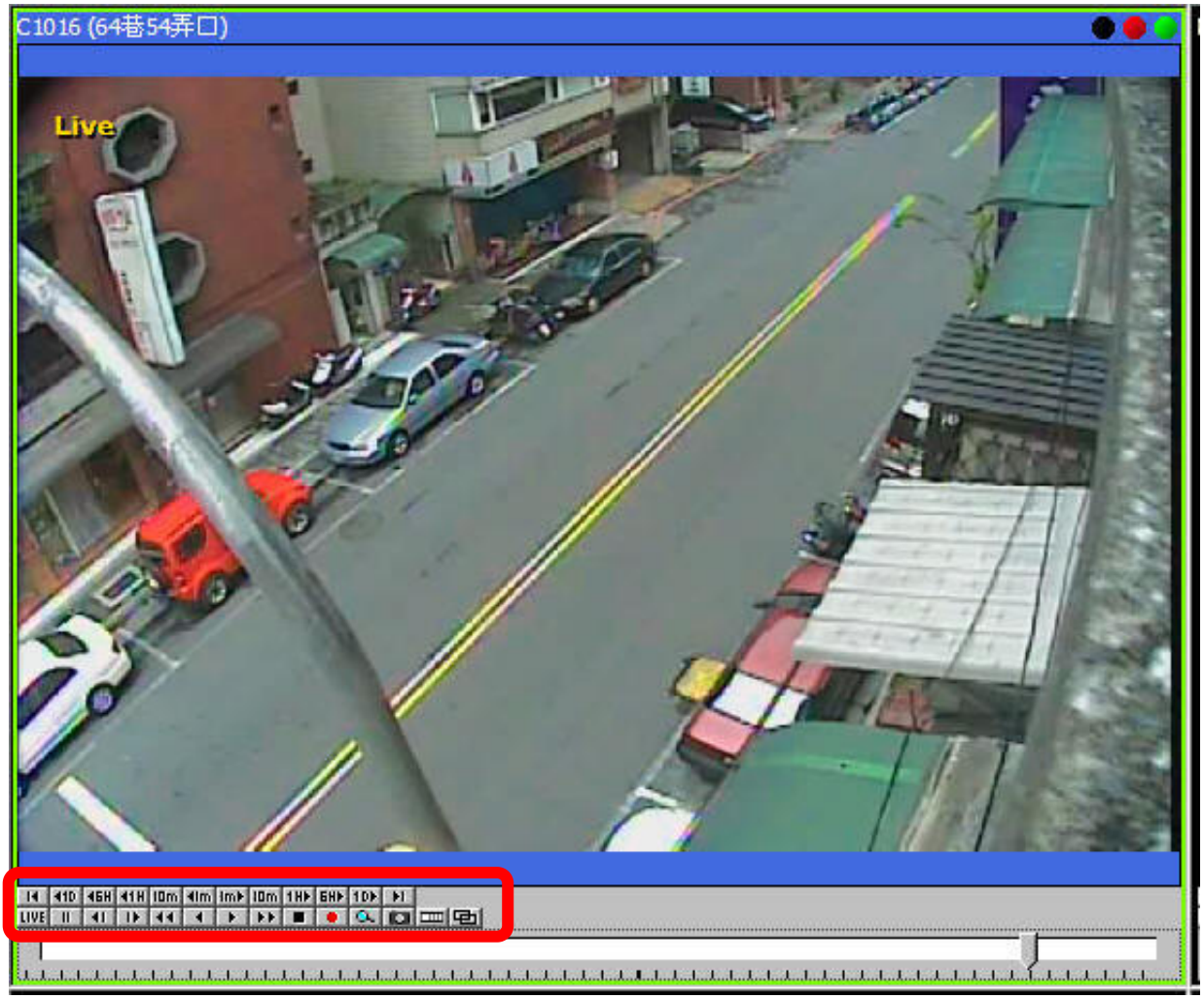
Configure for IE access.



Enable intelligent video analytic on server in camera configuration. You don't want to do this if the server is not dedicated to surveillance. To analyze video, the engine must decode it first so it consumes fair amount of computing power.



Some of the indicators in player is clickable



Chapter 2.
NVR System Installation

2.1 Introduction

The NVR software is typically deployed from a CDROM. This is how the software is distributed as a package. It is also possible that the installation program might have been downloaded from CTC Union's website, in which case the setup software is packaged in a ZIP file.
The following procedure will assume that we are installed the CDROM distribution.

2.2 NVR System Requirements

Recommended System Requirement

Operating System	Microsoft Windows XP/Windows 7/Server 2008
CPU	Multi-core CPU
System Memory	2G (or more)
Graphics	Nvidia or ATi Hi-performance graphics card
Video RAM	128MB (or more)
Required Space	At least 40MB for installation
Others	Requires DirectX 9

2.3 Software install

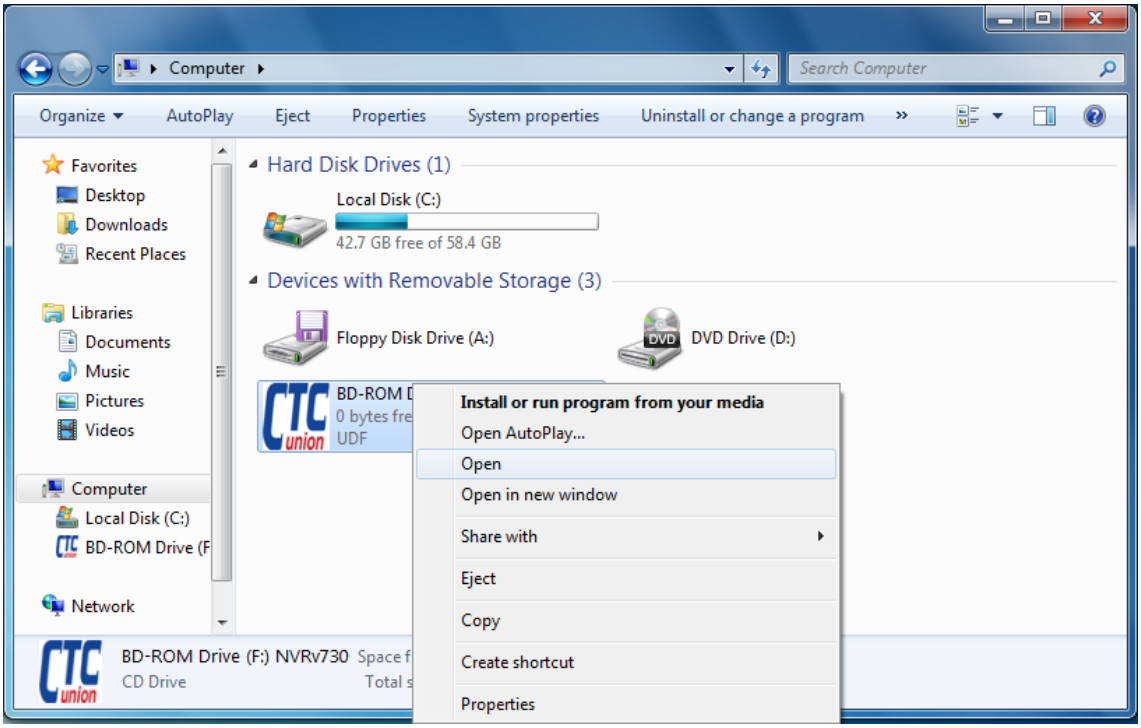
2.3.1 Server V.S Client

There are two software packages for NVR, one server, and one client. The server software provides the main recording functions. It captures the video streams from the network cameras, provides live view and records to local storage.

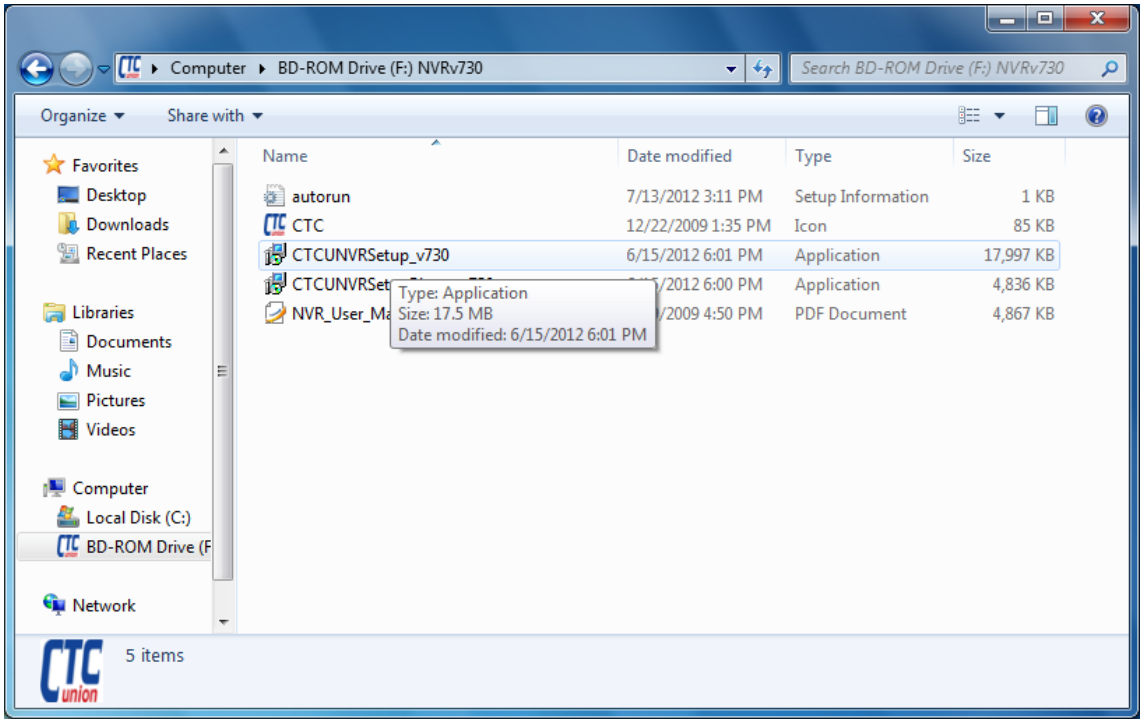
Client PCs view video from the server. A PC may simply use Internet Explorer web browser to view video, or if using the client software, may local record streams from the server. The client software cannot record the streams from the network cameras. That function is reserved for the server.

2.3.2 Exploring the CD contents

Place the installation CD into the PC's CD/DVD drive. If the installation does not auto-run, click the Window's 'Start' button and select 'Computer'. Locate the drive containing the installation media, click with the 'Right' mouse button and from the pull-down window select 'Open'.



Below the contents of the CD are shown. There are two setup files, one for installing the NVR server, the other for installing only the NVR client software. The user manual is also included on the CD and is in PDF format. The PDF can be opened using *Acrobat Reader*, *Foxit Reader*, or any other free PDF reader software.



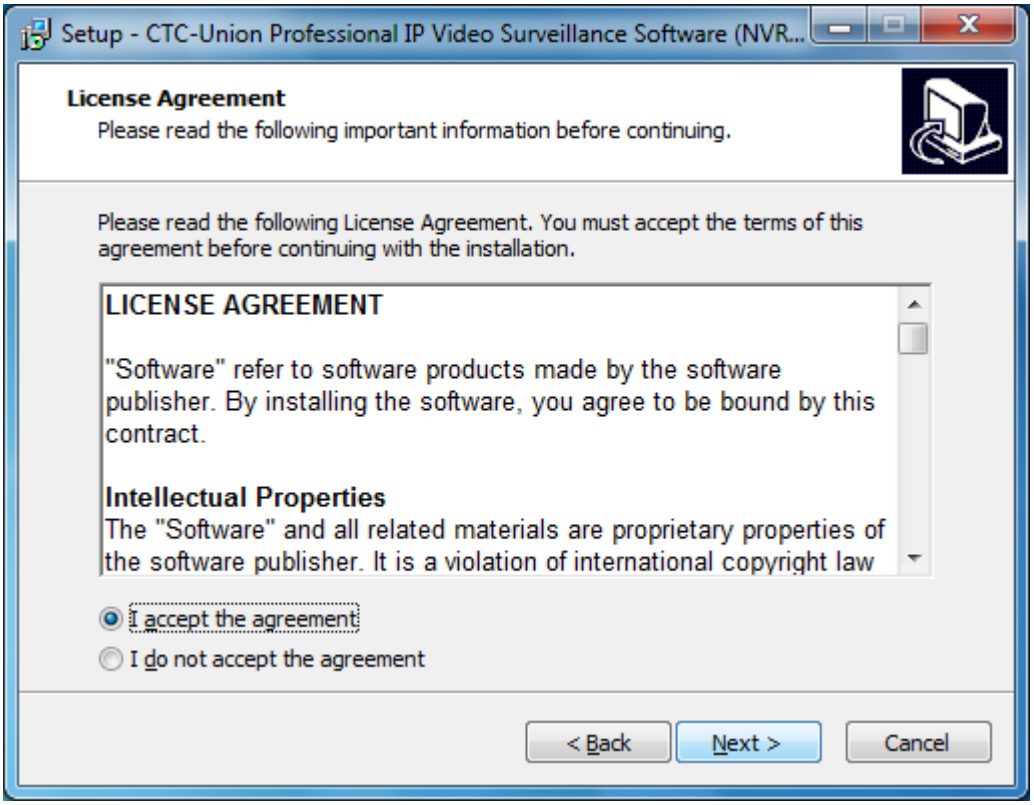
2.3.3 Installing the Software

Locate the file called 'CTCU NVR Setup vXXX' and double-click it to start the NVR installation.

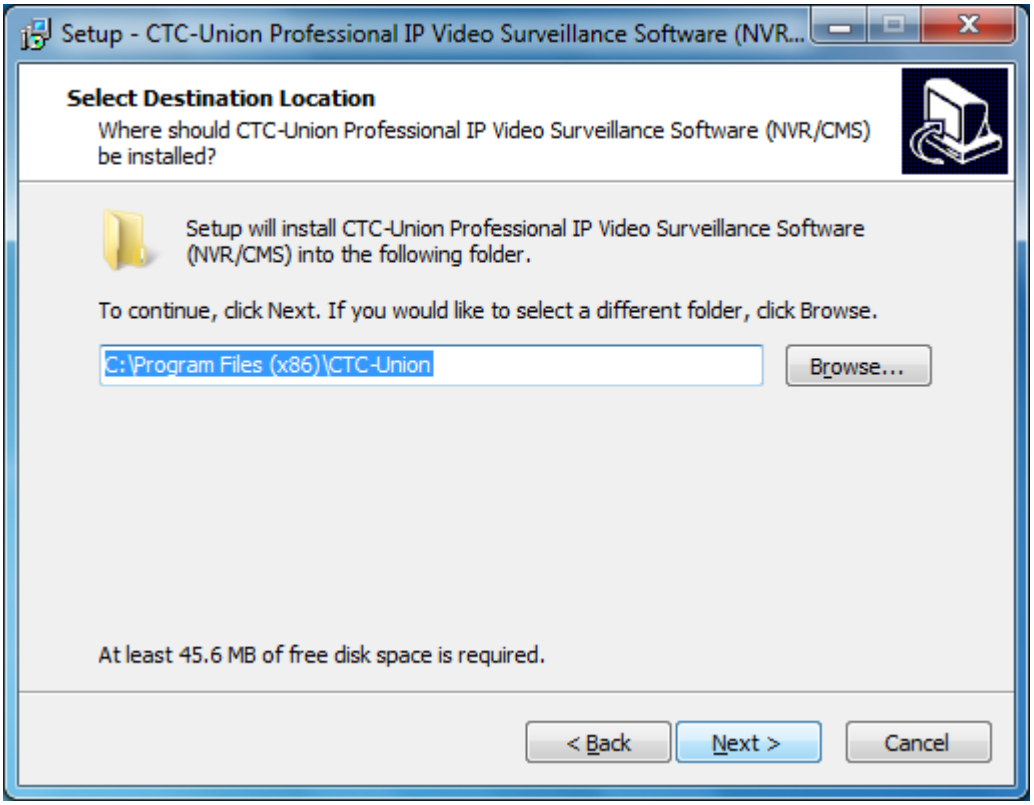
Select the language to use during installation.

Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Welcome to the CTC-Union Professional IP Video Surveillance Software (NVR/CMS) Setup Wizard
This will install CTCU NVR 730 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

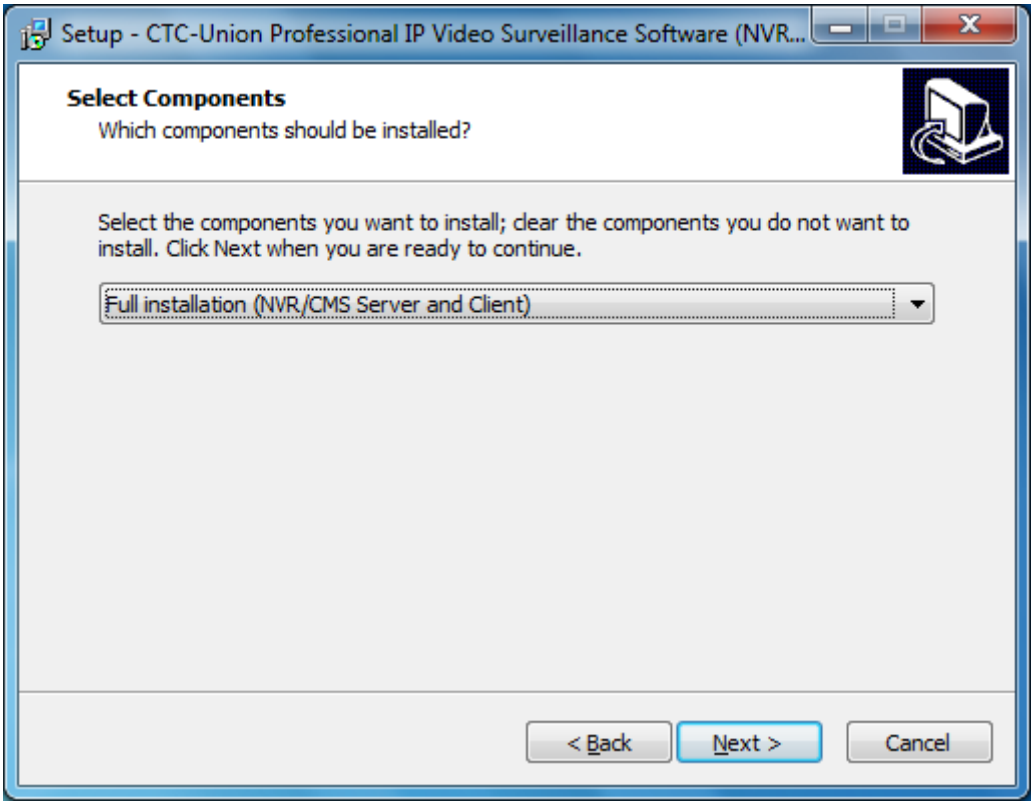
Click 'Next' from the 'Welcome' screen to continue the setup or 'Cancel' to exit setup.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
License Agreement
Please read the following important information before continuing.
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
LICENSE AGREEMENT
"Software" refer to software products made by the software publisher. By installing the software, you agree to be bound by this contract.
Intellectual Properties
The "Software" and all related materials are proprietary properties of the software publisher. It is a violation of international copyright law
I accept the agreement
I do not accept the agreement
< Back
Next >
Cancel

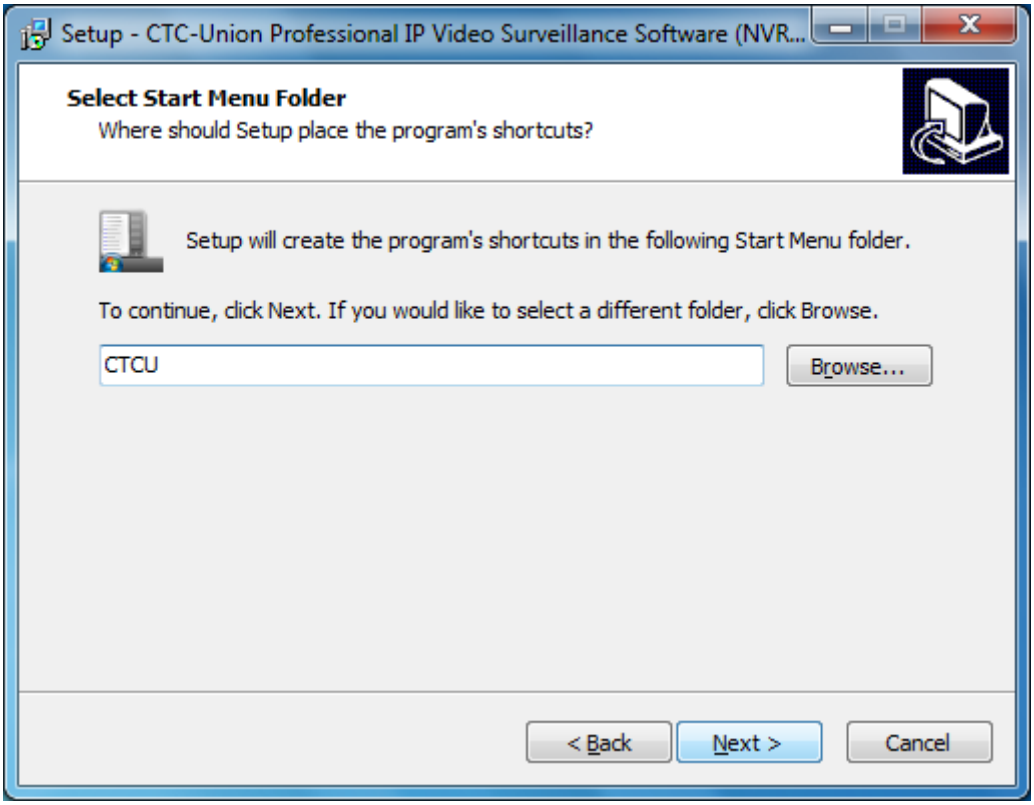
You must click the radio button "I accept the agreement" to the EULA (End User License Agreement) before you can install the software. After accepting the agreement, click 'Next' to continue.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Select Destination Location
Where should CTC-Union Professional IP Video Surveillance Software (NVR/CMS) be installed?
Setup will install CTC-Union Professional IP Video Surveillance Software (NVR/CMS) into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files (x86)\CTC-Union
Browse...
At least 45.6 MB of free disk space is required.
< Back
Next >
Cancel

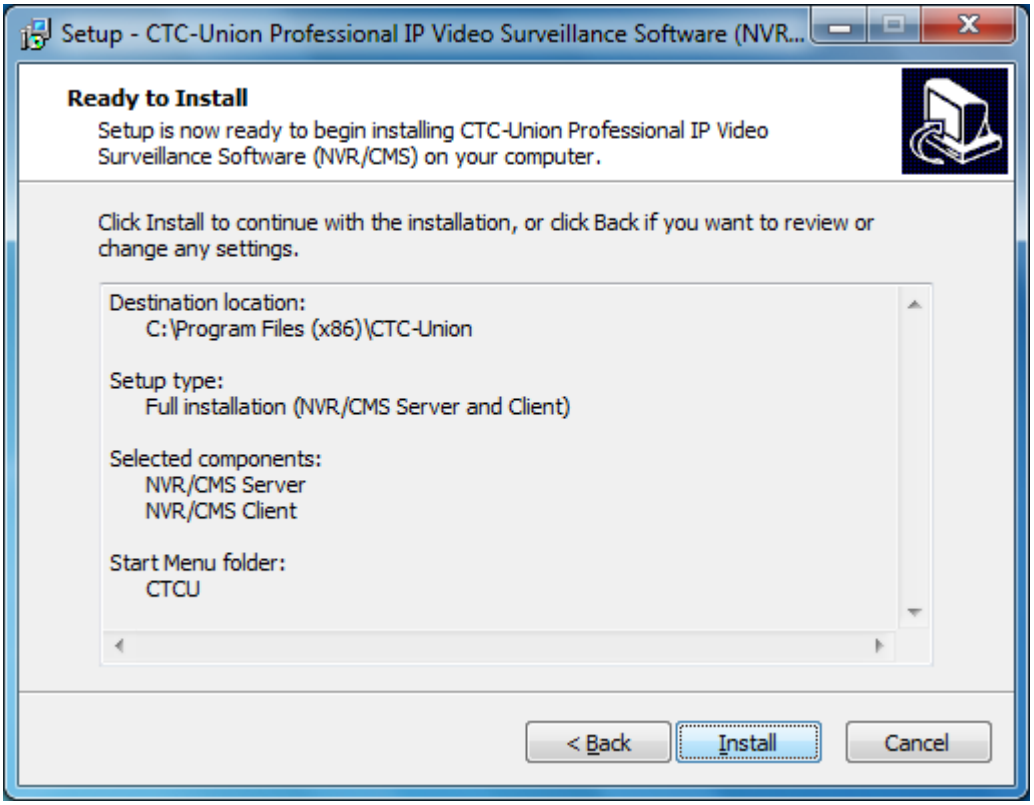
The default installation directory can be changed through this "Select Destination Location" screen. We recommend leaving the system default location which would be "C:\Program Files" for 32 bit OS or "C:\Program Files (x86) for the 32 bit folder on 64 bit OS. Click 'Next' to continue.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Select Components
Which components should be installed?
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.
Full installation (NVR/CMS Server and Client)
< Back
Next >
Cancel

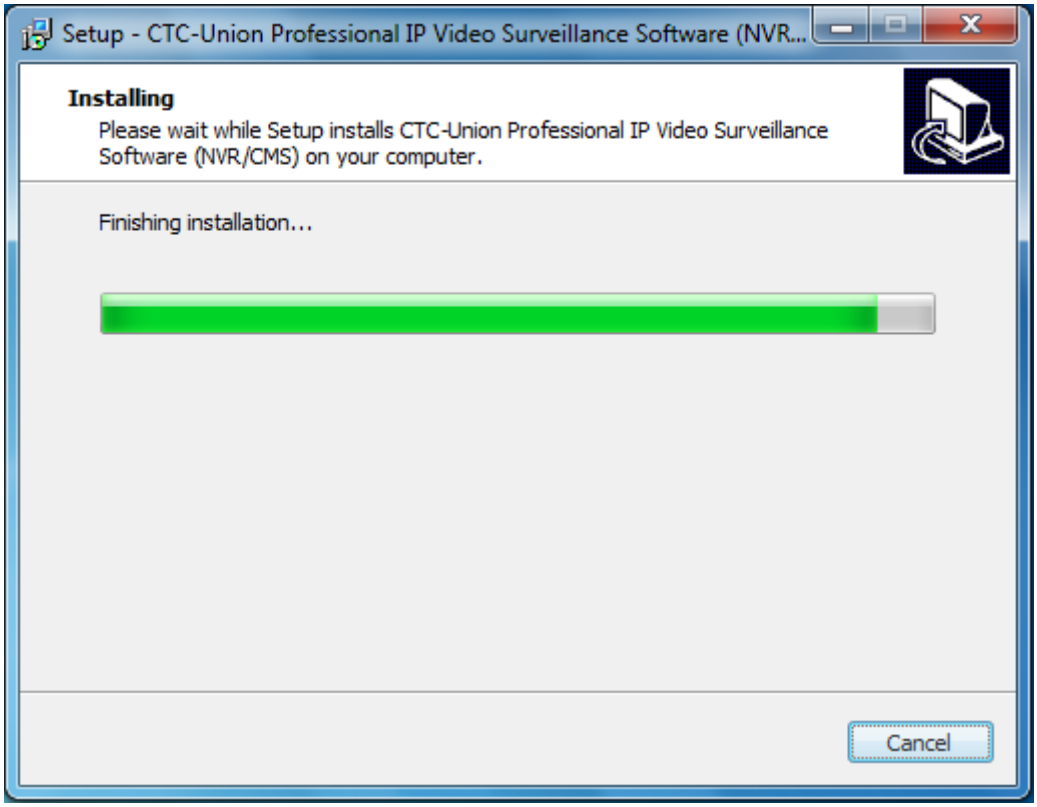
It is possible to only install the client portion of the software from the main server installation program. But in our case we will be sure to choose "Full installation (NVR/CMS Server and Client). Click 'Next'.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
CTCU
Browse...
< Back
Next >
Cancel

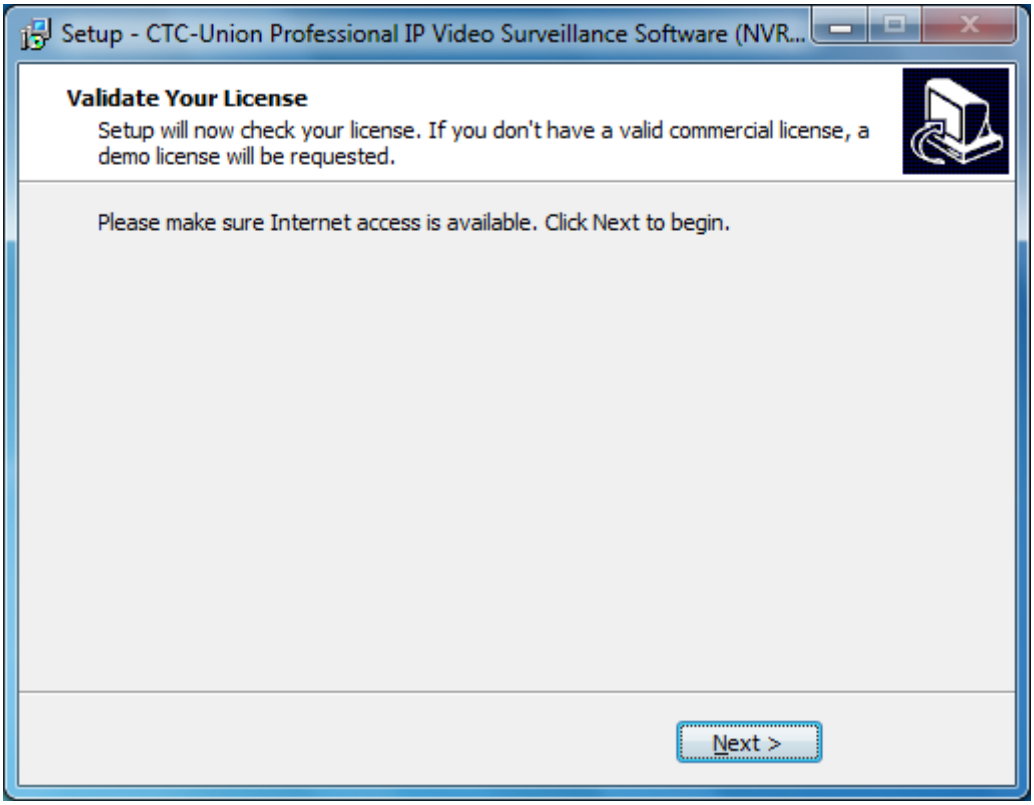
From the "Select Start Menu Folder" window the default program shortcut name can be changed. Click 'Next' to continue.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Ready to Install
Setup is now ready to begin installing CTC-Union Professional IP Video Surveillance Software (NVR/CMS) on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files (x86)\CTC-Union
Setup type:
Full installation (NVR/CMS Server and Client)
Selected components:
NVR/CMS Server
NVR/CMS Client
Start Menu folder:
CTCU
< Back
Install
Cancel

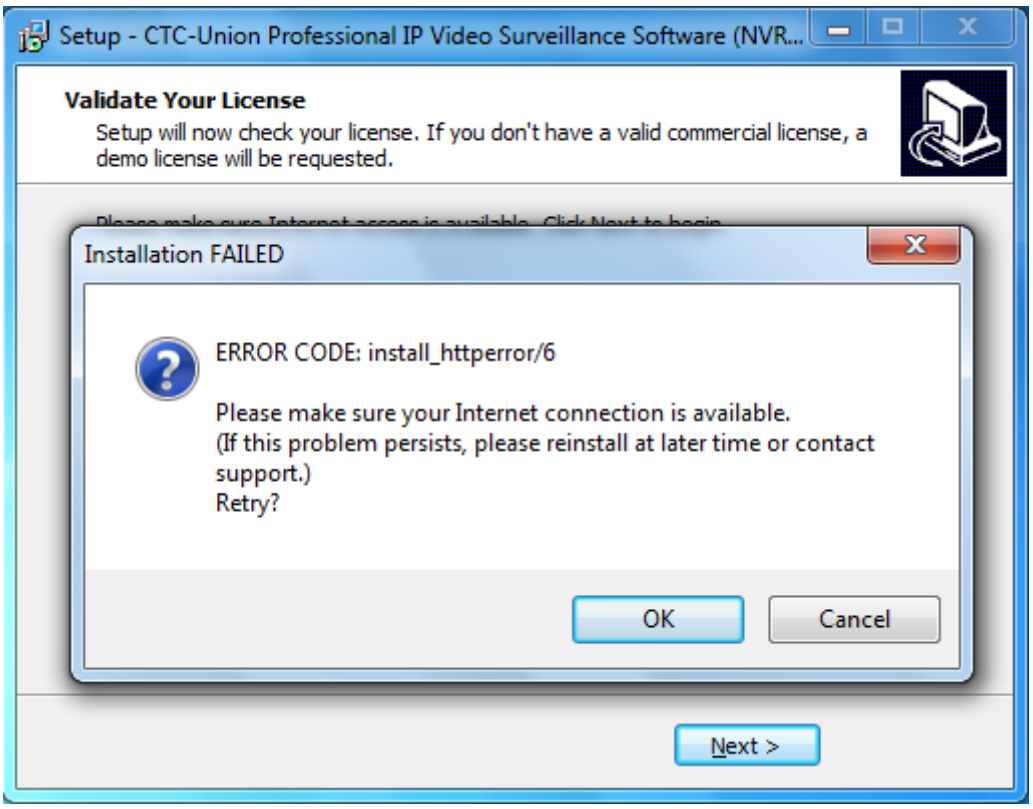
Now that all information has been gathered, the program is ready to be installed. If you 'Cancel' at this point, you must start installation all over again. Click 'Install' now to install the NVR server program.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Installing
Please wait while Setup installs CTC-Union Professional IP Video Surveillance Software (NVR/CMS) on your computer.
Finishing installation...
Cancel

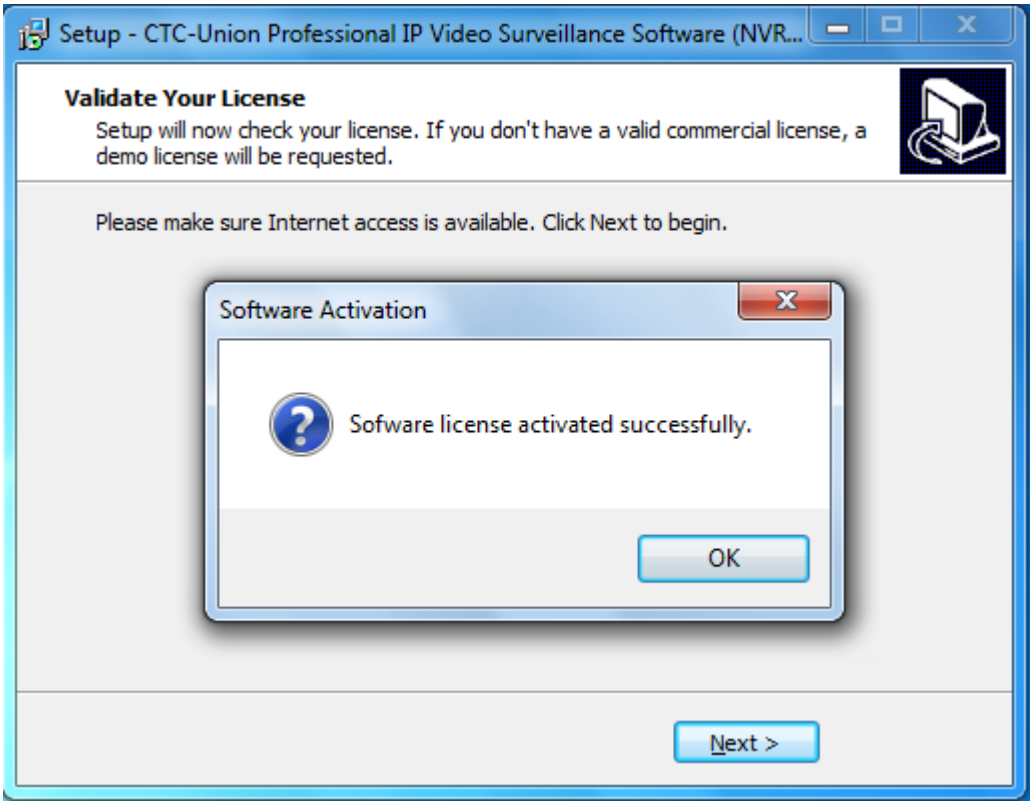
The "Progress Bar" will indicate the progress of the NVR installation.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Validate Your License
Setup will now check your license. If you don't have a valid commercial license, a demo license will be requested.
Please make sure Internet access is available. Click Next to begin.
Next >

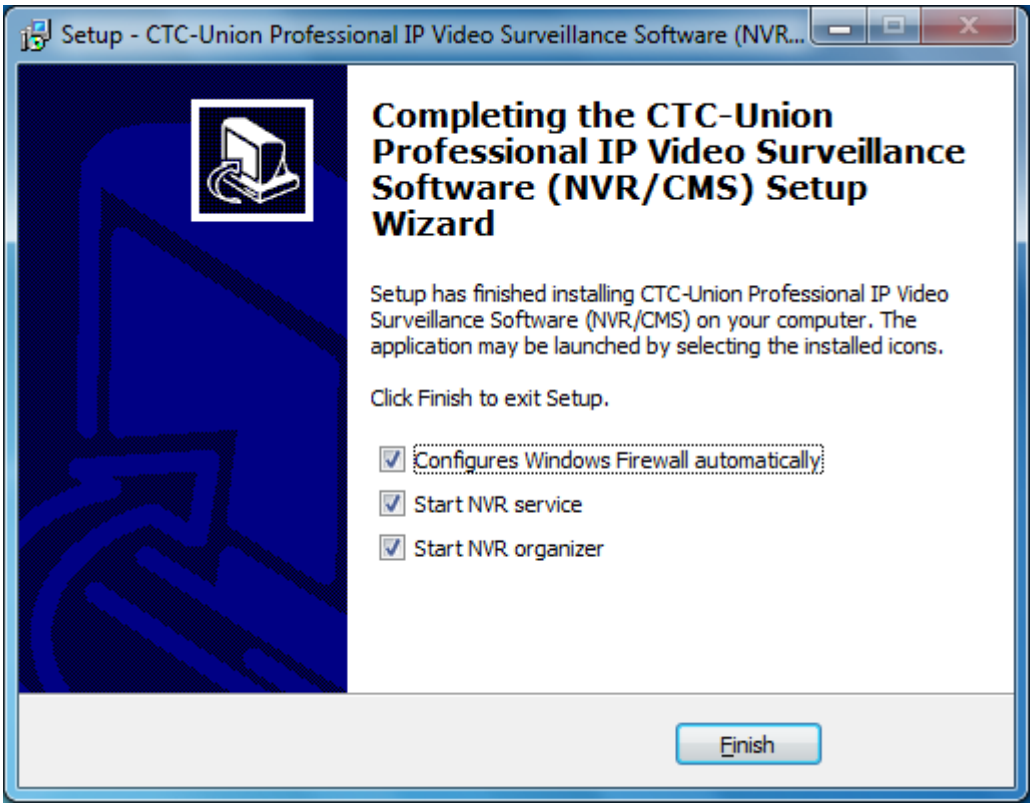
The next step of the installation will validate your NVR license. You must be connected to the Internet in order for License Verification to succeed. If you do not yet have a license, you still must be connected to the Internet. The NVR will run in 'Demo License' mode, supporting a maximum of only 4 cameras.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Validate Your License
Setup will now check your license. If you don't have a valid commercial license, a demo license will be requested.
Installation FAILED
ERROR CODE: install_httperror/6
Please make sure your Internet connection is available.
(If this problem persists, please reinstall at later time or contact support.)
Retry?
OK
Cancel
Next >

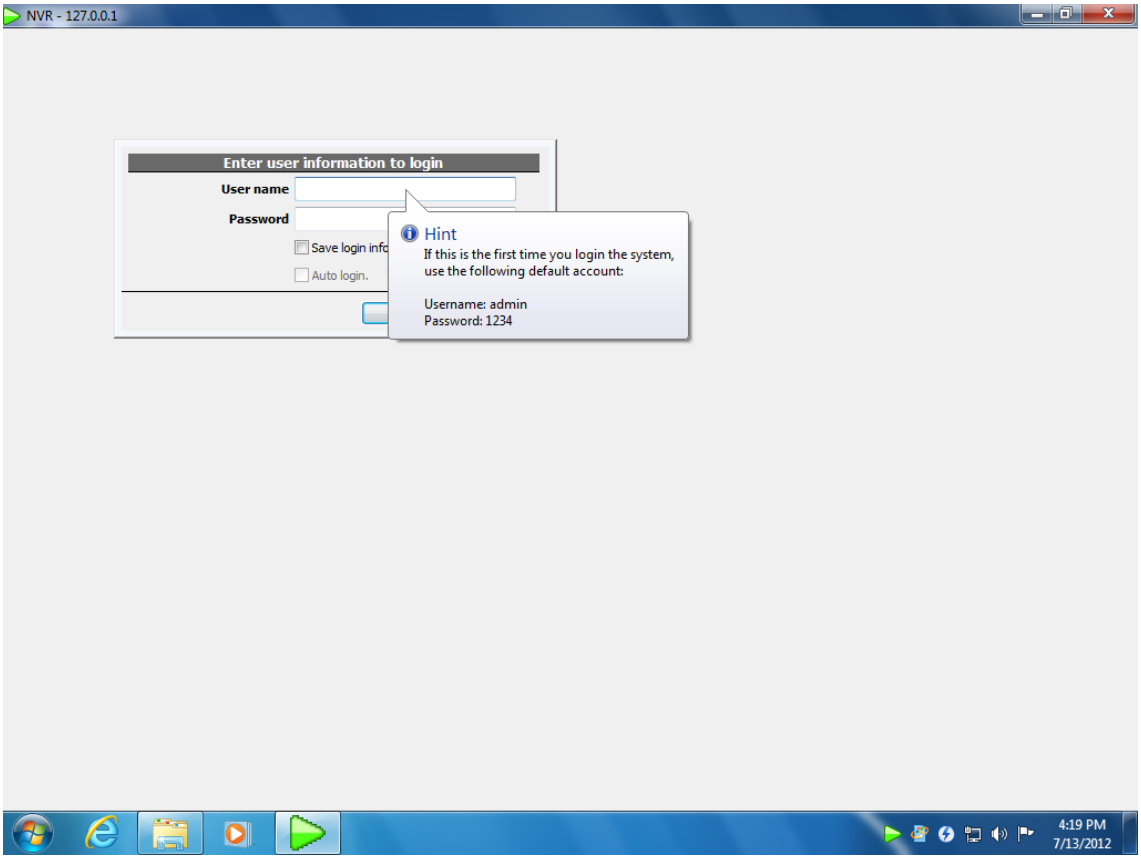
If there is a problem with Internet connection, the above error code will be displayed. The NVR installer must be able to contact the License Server.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Validate Your License
Setup will now check your license. If you don't have a valid commercial license, a demo license will be requested.
Please make sure Internet access is available. Click Next to begin.
Software Activation
Sofware license activated successfully.
OK
Next >

The software has been installed and is running in Demo mode.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Completing the CTC-Union Professional IP Video Surveillance Software (NVR/CMS) Setup Wizard
Setup has finished installing CTC-Union Professional IP Video Surveillance Software (NVR/CMS) on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Configures Windows Firewall automatically
Start NVR service
Start NVR organizer
Finish

The final step of the setup is the configure which windows "services" will be launched. Select all three items and then click 'Finish'.

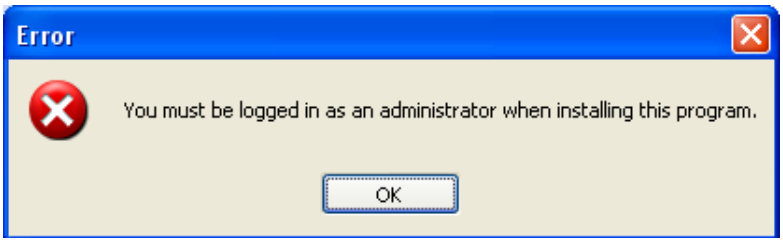


The NVR is now installed and running. The default username and password are "admin/1234".

2.3.4 NVR Client installation

Locate the installation files. You may have these files on CDROM or they may have been downloaded from CTC Union's website. In either case, double-click the client install file.

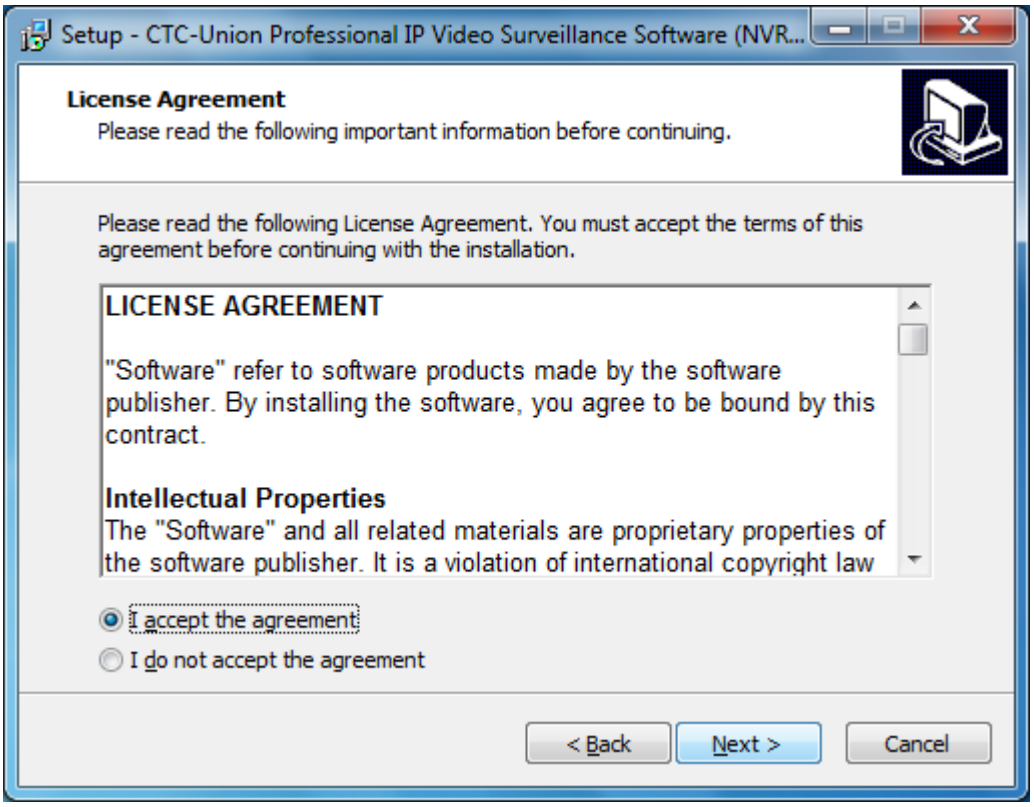
Administrative privileges are required in order to install this software. If you see the following message, either logout and log back in as 'administrator', log in with another account that has administrative privileges or add administrative privileges to your user account.



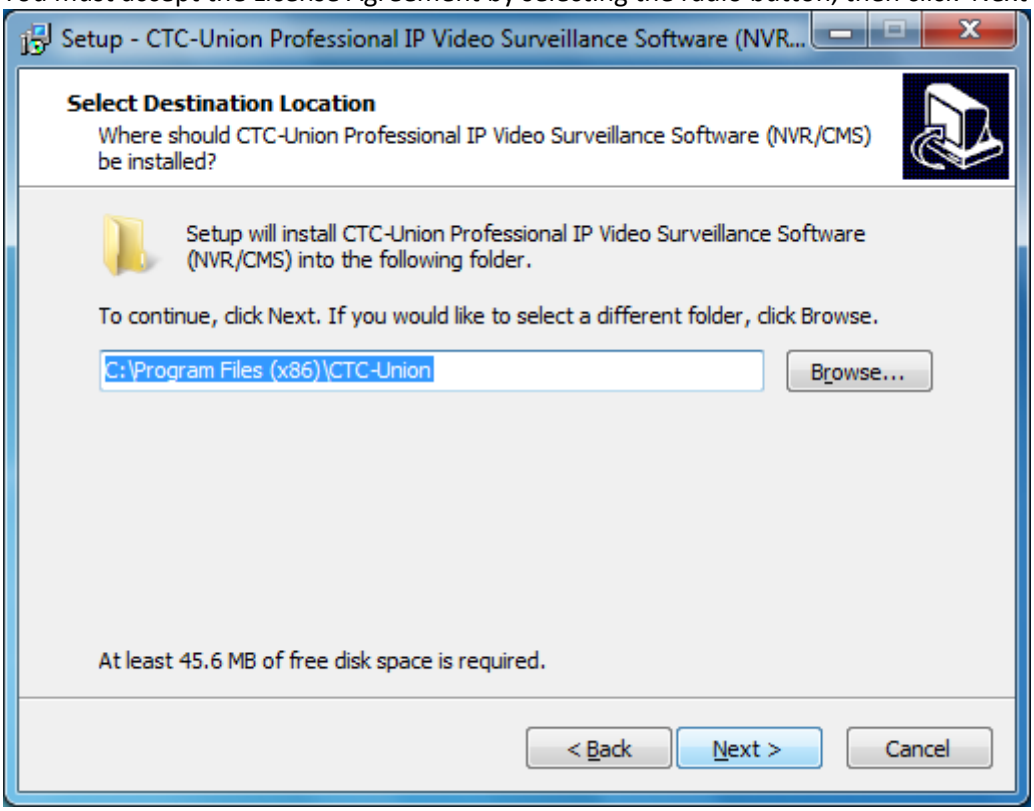
Start to setup wizard

Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Welcome to the CTC-Union Professional IP Video Surveillance Software (NVR/CMS) Setup Wizard
This will install CTCU NVR 730 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

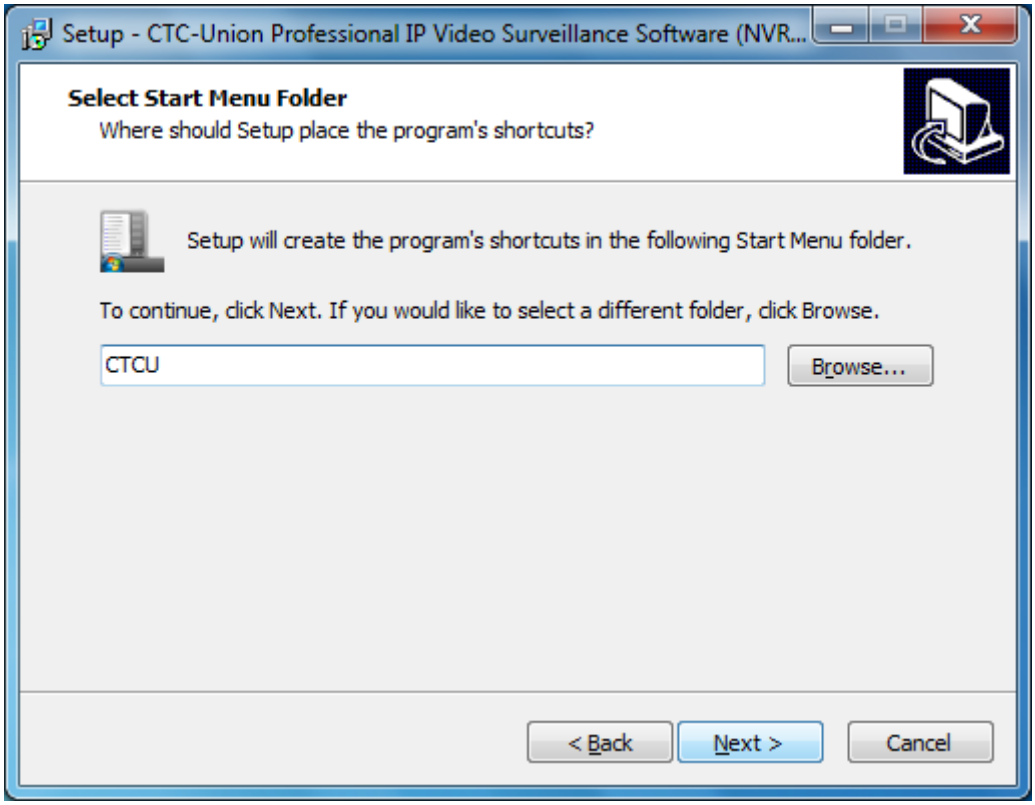
Continue with setup by clicking the 'Next >' button.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
License Agreement
Please read the following important information before continuing.
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
LICENSE AGREEMENT
"Software" refer to software products made by the software publisher. By installing the software, you agree to be bound by this contract.
Intellectual Properties
The "Software" and all related materials are proprietary properties of the software publisher. It is a violation of international copyright law
I accept the agreement
I do not accept the agreement
< Back
Next >
Cancel

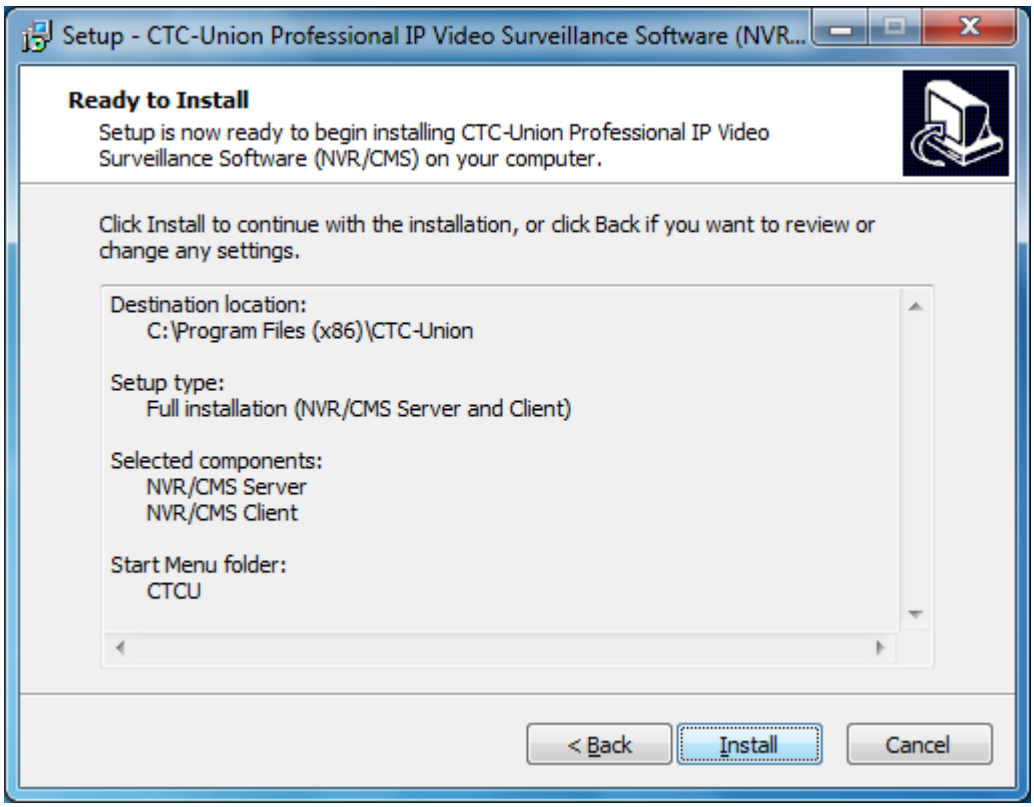
You must accept the License Agreement by selecting the radio button, then click 'Next >'.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Select Destination Location
Where should CTC-Union Professional IP Video Surveillance Software (NVR/CMS) be installed?
Setup will install CTC-Union Professional IP Video Surveillance Software (NVR/CMS) into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files (x86)\CTC-Union
Browse...
At least 45.6 MB of free disk space is required.
< Back
Next >
Cancel

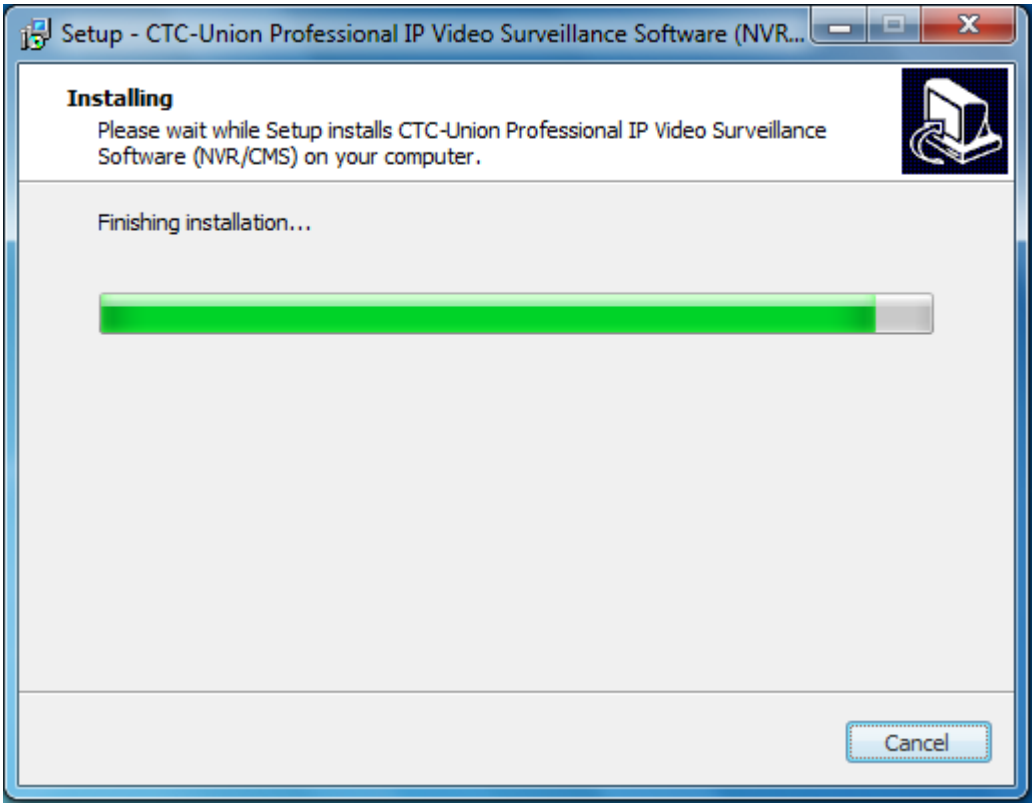
Use the 'Browse...' button to select a different location to install the program, or press 'Next >' to continue.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
CTCU
Browse...
< Back
Next >
Cancel

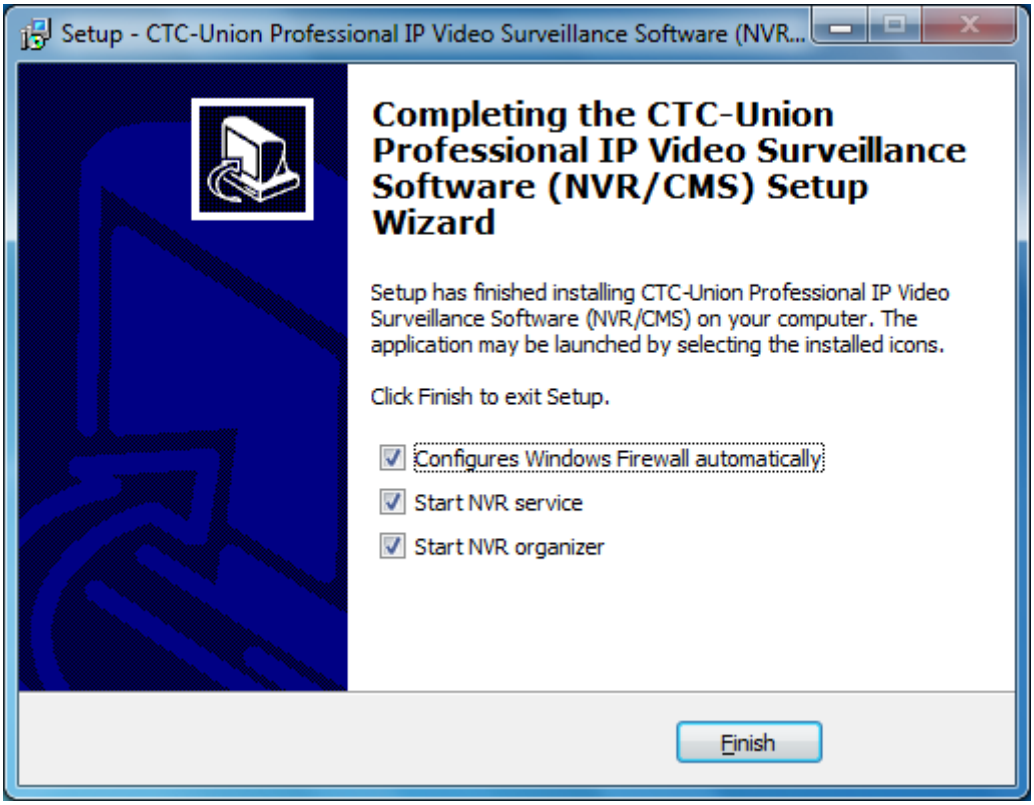
Click 'Next >' to continue with the assigned program start folder.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Ready to Install
Setup is now ready to begin installing CTC-Union Professional IP Video Surveillance Software (NVR/CMS) on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files (x86)\CTC-Union
Setup type:
Full installation (NVR/CMS Server and Client)
Selected components:
NVR/CMS Server
NVR/CMS Client
Start Menu folder:
CTCU
< Back
Install
Cancel

Review the settings and then click 'Install'.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Installing
Please wait while Setup installs CTC-Union Professional IP Video Surveillance Software (NVR/CMS) on your computer.
Finishing installation...
Cancel

The setup now proceeds to install the program.


Setup - CTC-Union Professional IP Video Surveillance Software (NVR...
Completing the CTC-Union Professional IP Video Surveillance Software (NVR/CMS) Setup Wizard
Setup has finished installing CTC-Union Professional IP Video Surveillance Software (NVR/CMS) on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Configures Windows Firewall automatically
Start NVR service
Start NVR organizer
Finish

By default, just leave one check boxes checked and then click 'Finish'.

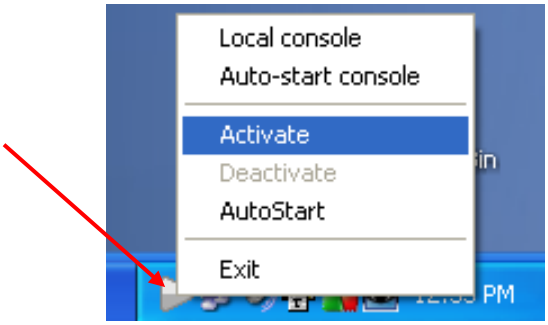
2.4 Start NVR Service

At installation complete screen, you can choose "Start NVR service" to start the NVR service. You can also invoke this by using "Start Menu"=>"Programs'=>" NVR organizer"=>"Start NVR service

If the installation is properly done and service is started, you will see a gray triangle-shaped icon in the tray-icon area (usually at the right-bottom side of the screen)

Use the Tray Icon

The NVR has an icon that will reside in the toolbar. The icon is 'green' in color when the NVR is activated. To activate the NVR, right-click the toolbar icon and select 'Activate' from the pop-up window. If you select 'Auto-Start' the NVR will automatically activate on Windows startup or login.



The color of the tray icon indicates the system status:

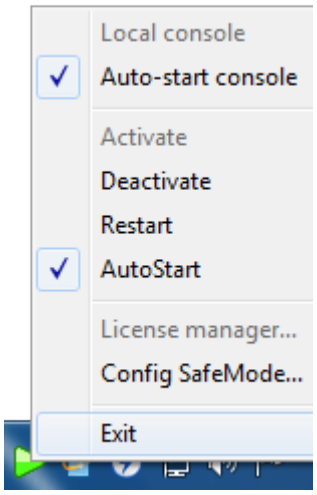
The NVR is offline.

The NVR is online.

The NVR will be auto-started very soon

The NVR is busy starting up or shutting down.

You can right-click on the tray-icon to change the system state:



In production environment, you should configure your NVR as "Auto-start", so it will automatically start on system start-up, and it will also automatically restart after abnormal shutdown.
Right click the icon ，and click “Local Console” to login.

If there are no accounts existing in the system, an administrator account is automatically created:

Default accounts
Account：**admin**
Password：**1234**

It is essential to change the password right after first login to ensure the security of the system. Please refer to related pages in this section about how to perform password change to a specific account.

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Chapter 3.
VIDEO STREAMING AND CHANNEL SETTING

3.1 System Requirements

Minimum System Requirement

Operating System	Microsoft Windows XP / Windows 7 / Server 2008
System Memory	1G
Video RAM	64MB
Others	Requires DirectX 9 preinstalled

Recommended System Requirement

Operating System	Microsoft Windows XP
CPU	Multi-core CPU
System Memory	2G
Video RAM	128MB
Others	Requires DirectX 9 preinstalled

3.2 Download Setup

Downloading

Log in to the partner web and selects the "Licensed Install". Select proper component to install.

Download the setup package into local folder and execute it.

Activating License

There are two ways to properly activate your license. One is to use our USB-dongle-key. The other is use **Online License Authorization**.

If the product is not properly licensed, it won't work correctly.

Starting NVR Service At installation complete screen, you can choose "Start NVR service" to start the NVR service. You can also invoke this by using "Start Menu"=>"Programs'=>"NVR organizer"=>"Start NVR service"

If the installation is properly done and service is started, you will see a gray triangle-shaped icon in the tray-icon area (usually at the right-bottom side of the screen), like the following picture.

3.3 Using Online License Authorization

Concepts

Online license authorization offers software publisher a more flexible way to sell license and to eliminate additional logistic cost. In NVR system, it even gives the flexibility to license software in per-single-channel basis. Therefore it's more cost-effective to the customers.

In our system, there are two types of license:

Online license: This type of license requires periodic Internet check of license validity. It allows users to transfer license from one computer to another, as long as the maximum concurrent license does not exceed the purchased ones. In most scenario, this offers greatest flexibility, highest cost efficiency, and minimum risk.

Offline license: This type of license does not require Internet when normal operation. However it needs to be "bound" to a specific computer. The operation to bind a license to a computer is called "*commit*". If you *committed* a license to a computer, it became *fused* to that specific computer state (including its system and the underlying hardware). If you change the underlying system or hardware, you risk *losing* the license.

It is generally recommended unless situation is required, one should avoid using offline license and choose the online one. Even if offline scenario is required, one should start from using online license. After a period of stable running, one can always convert online license directly to offline ones through the process of *committing*.

To generate effective license (called authorization code, or auth. code), one need two elements**Request code**: This code contains information about target computer, number of channels and type of product requested.

- **Purchase code**: This is the code that you paid money for. (Giving away this code is same as giving away your money. So you need to keep it in secret.)

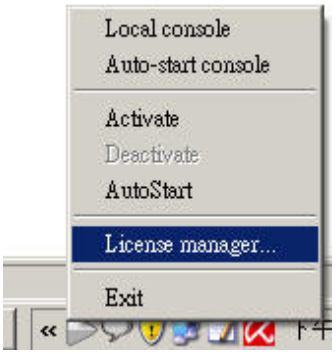
In online environment, the request code is transparent (*invisible*) to users. You only need to input purchase code in the GUI to get authorized. However, in some special environment, where Internet access is not possible, we also offer an offline way to activate license. In this scenario, you must generate a request file (which contains encrypted request code), copy it to a portable storage device, and bring it to a computer where Internet access is available.

In addition to the types of license, there are some attributes associated with a specific license. Depending on actual business terms, a license might have a number of following properties:

- **Forced online license**: If a license has this attribute, it *cannot* be committed to computer. If you try to do that, it will fail (Offline Install Forbidden). This is needed in some business terms to enforce certain licensing policies.
- **Limited (Expire able) license**: A license may subject to expire after certain date (either demo license or not). This kind of license implies "forced online license".
- **Demo/Evaluation**: If a license has this attribute, the program will display an evaluation notice stating that *"using the software in production environment of any kind is strictly prohibited"*. This is needed for customers who want to try the software before paying. The function of the program is, however, almost same as the formal one. Demo version implies "forced online license" and "limited license" (the reverse is not true). A demo license can be transparently converted to formal one by paying fees to clear the demo flag on the server. The user only needs to restart the NVR engine to obtain formal license automatically.

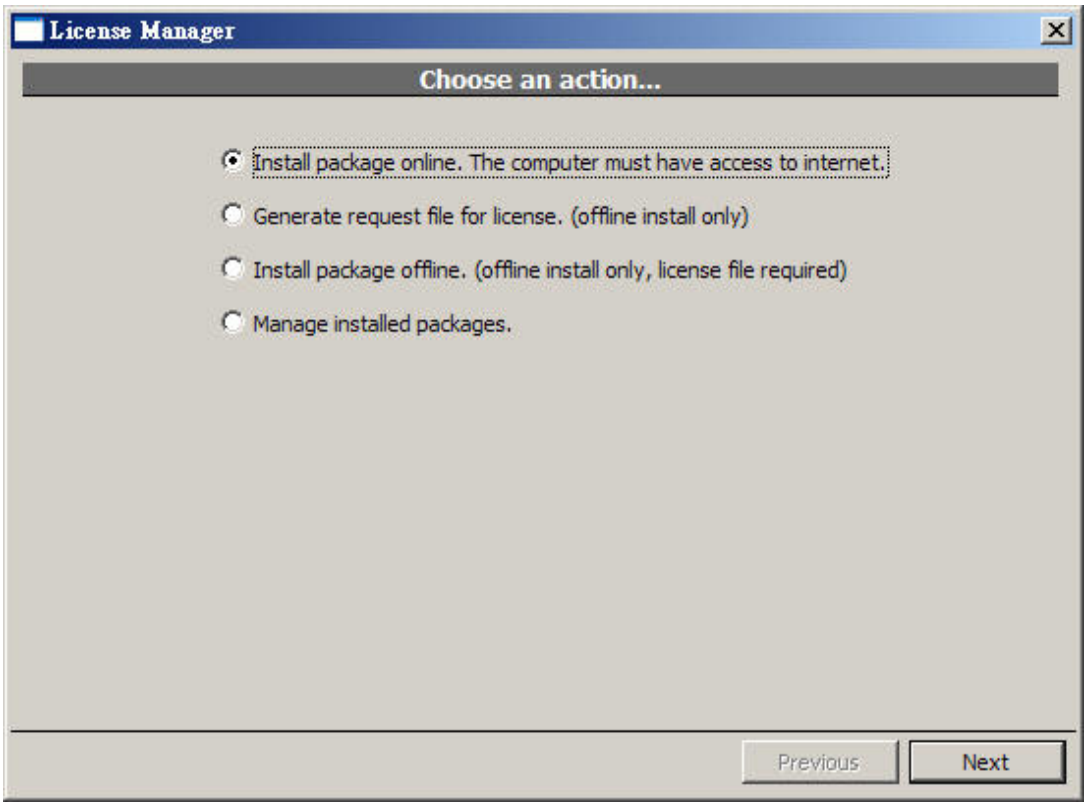
On systems like Windows Vista or Windows 7, where administrative privilege is often not given in default scenario, you will need right-click NVR organizer and select "Run as administrator" to let the program gain administrative access.

The NVR engine service must NOT be also running. That is: only one of NVR engine and License Manager can be running at the same time. They are, sort of, exclusive to each other. If you try to start NVR engine service while License Manager is running, it will cause the NVR service license check to fail.

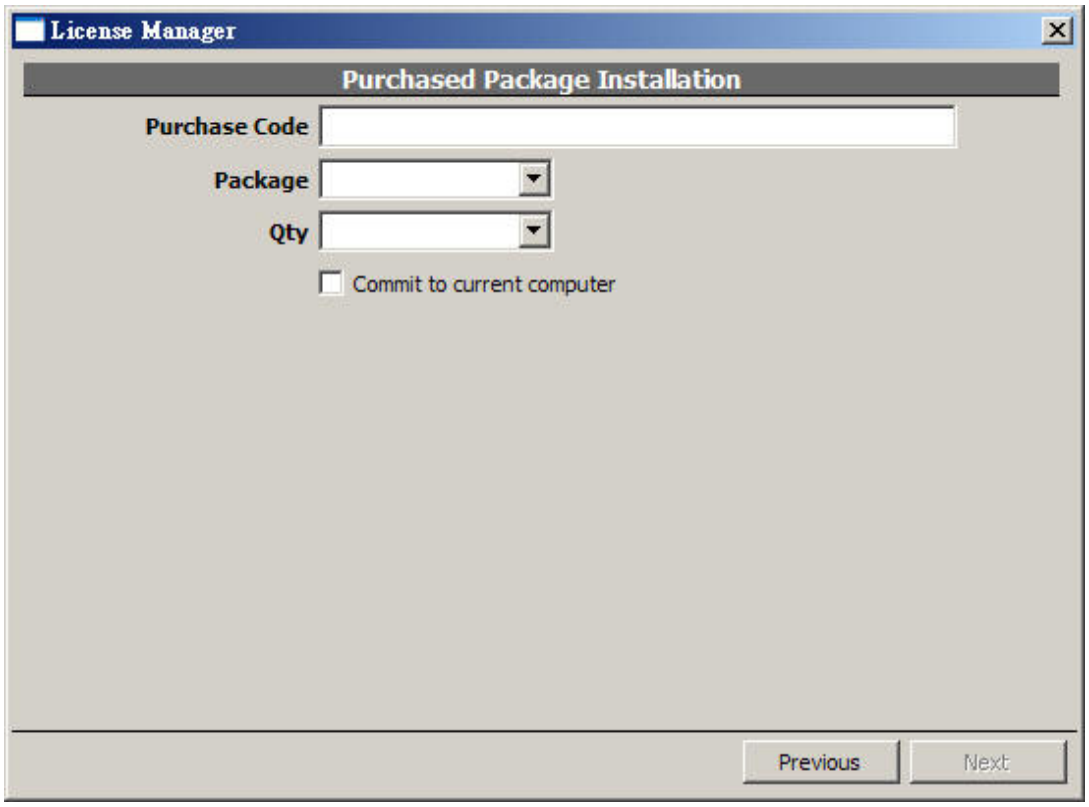


License Manager - Install package online

The fastest and most convenient way to install package is through "Install package online" option. You will need unrestricted access to the Internet to use this option. Please note however, using this option means you will need Internet even in normal operation, as License Manager will check in the background periodically for license validation. (see Concepts.)


License Manager
Choose an action...
Install package online. The computer must have access to internet.
Generate request file for license. (offline install only)
Install package offline. (offline install only, license file required)
Manage installed packages.
Previous
Next

After clicking "Next", following screen will appear. You need to enter purchase code, package, and desired quantity. Please note the desired quantity must not exceed the remaining purchased quantity. If you check the "Commit to current computer" box, this will became an *offline license* (unless the licensing terms doesn't allow that). You can always convert an online license to an offline one later.



Package Types

There are 3 types of packages, when selecting license to install:

"**std**": This means the NVR Standard edition.

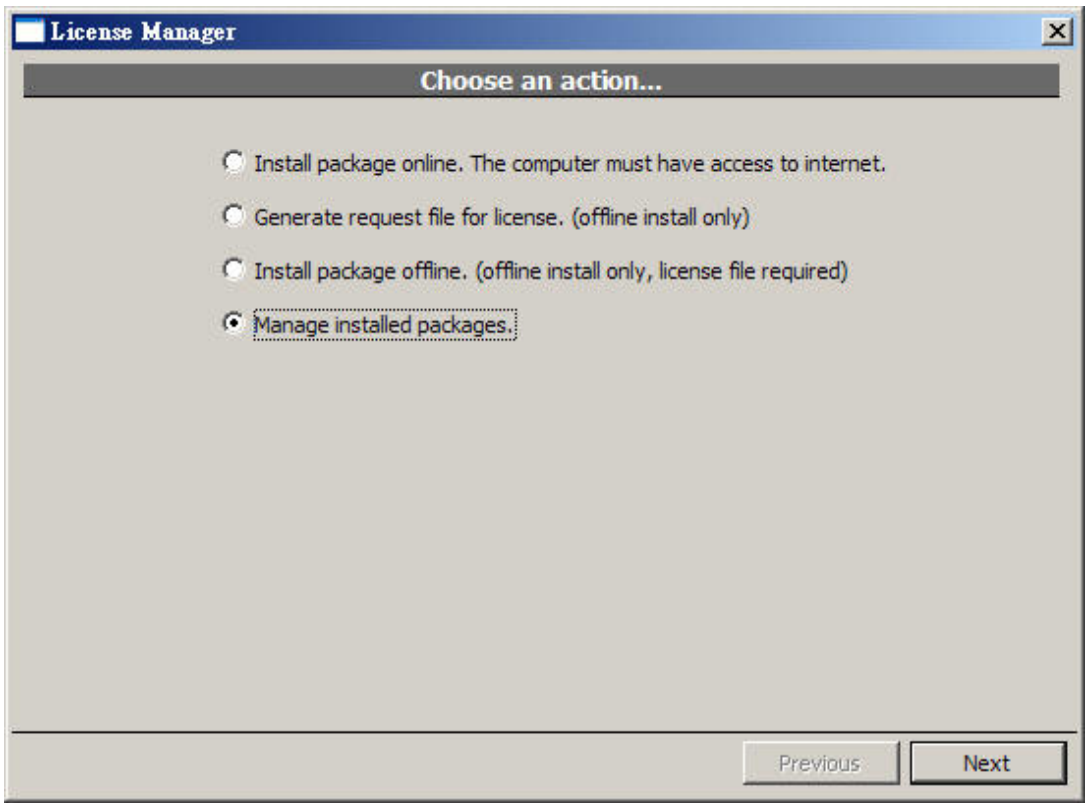
"**pro**": This means the NVR Professional edition.

"**ipr**": This means the NVR Intelligent edition.

The prices for different packages are different. Please note however, you cannot mix installing **"std"** and **"pro"** packages on the same computer. If you do so, "**std**" packages will be hidden and *disabled*, becoming *useless*. On the other hand, you can mix "**pro**" and "**ipr**" packages freely on the same computer.

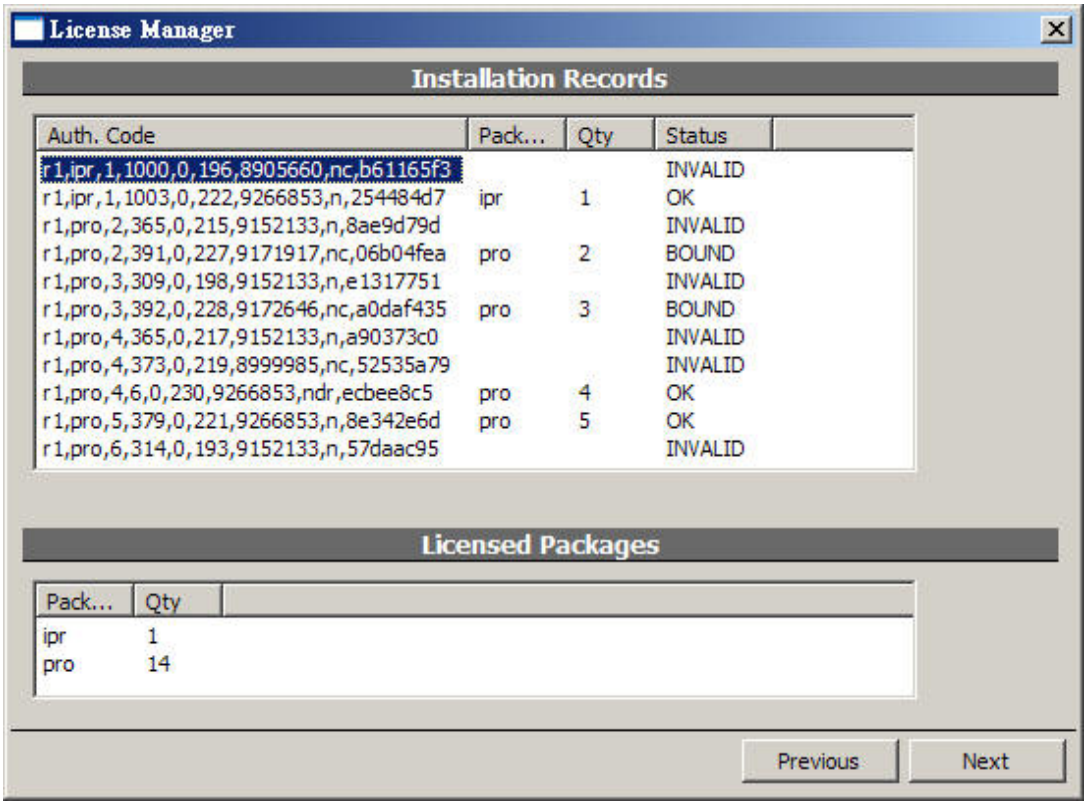
Managing Installed License

To manage installed license, select the indicated item:


License Manager
Choose an action...
Install package online. The computer must have access to internet.
Generate request file for license. (offline install only)
Install package offline. (offline install only, license file required)
Manage installed packages.
Previous
Next

Following screen will appear:

Authorized packages


License Manager
Installation Records
Auth. Code | Pack... | Qty | Status
r1,ipr,1,1000,0,196,8905660,nc,b61165f3 | | | INVALID
r1,ipr,1,1003,0,222,9266853,n,254484d7 | ipr | 1 | OK
r1,pro,2,365,0,215,9152133,n,8ae9d79d | | | INVALID
r1,pro,2,391,0,227,9171917,nc,06b04fea | pro | 2 | BOUND
r1,pro,3,309,0,198,9152133,n,e1317751 | | | INVALID
r1,pro,3,392,0,228,9172646,nc,a0daf435 | pro | 3 | BOUND
r1,pro,4,365,0,217,9152133,n,a90373c0 | | | INVALID
r1,pro,4,373,0,219,8999985,nc,52535a79 | | | INVALID
r1,pro,4,6,0,230,9266853,ndr,ecbee8c5 | pro | 4 | OK
r1,pro,5,379,0,221,9266853,n,8e342e6d | pro | 5 | OK
r1,pro,6,314,0,193,9152133,n,57daac95 | | | INVALID
Licensed Packages
Pack... | Qty
ipr | 1
pro | 14
Previous
Next

Below explains license status:

"**OK**": This online license works correctly.

"**NEW**": This is a newly installed license.

"**BOUND**": This is an offline (*committed*) license which works correctly.

"**UNKNOWN**": This license is currently working (and is previously known working). But due to some factors (such as lacking Internet connection or exceeding maximum concurrent license), it might *soon* be invalidated.

"**FAIL**": This license is invalidated, mostly likely due to license check failure, or license revoked at server-side.

"**INVALID**": This license is invalidated, mostly likely due to computer system change.

If you want to *commit* a online license to current computer, right-click on that license and bring up a context menu. Select "Commit..." to perform the commit operation. You'll need Internet connection to perform this operation.

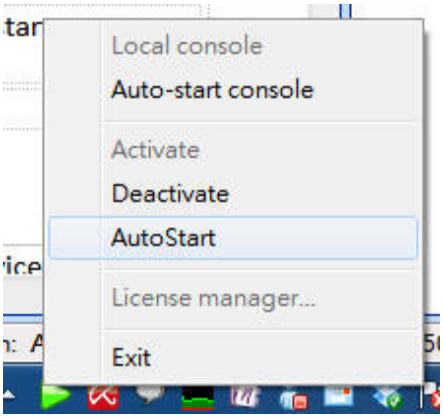
3.4 Starting the Service

Use the Tray Icon

The color of the tray icon indicates the system status:

- The NVR is offline.
- The NVR is online.
- The NVR will be auto-started very soon
- The NVR is busy starting up or shutting down.

You can right-click on the tray-icon to change the system state:



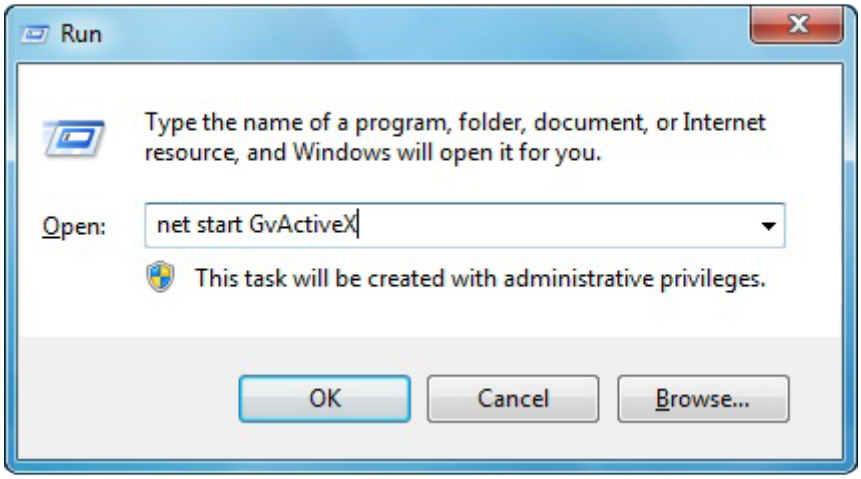
In production environment, you should configure your NVR as "Auto-start", so it will automatically start on system start-up, and it will also automatically restart on abnormal shutdown.

Alternative Way to Activate NVR

The tray icon manager of the CTC NVR should automatically appear . If it's not, you can activate the tray icon by using Windows service manager to start service "ActiveX".

You can do so by either

(1) **Start a service using "net" Command** Use "Start Menu"=>"Run"


Run
Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:
net start GvActiveX
This task will be created with administrative privileges.
OK
Cancel
Browse...

A dialog will appear. Now enter "net start ActiveX" and press ENTER.

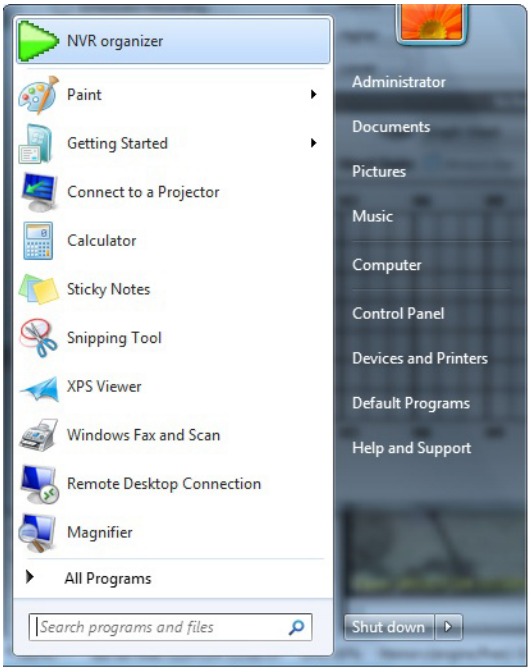
(2) **Start a service using Windows service manager consol**

Use "Start Menu"=>"Settings"=>"Control Panel"=>"Administrative Tools"=>"Services"
Locate "ActiveX"
Right-click and select "Start".

Note: Sometimes the GUI of the service manager is not updated so you will be unable to select the "Start" from context menu. In this case, press F5 to refresh the GUI.

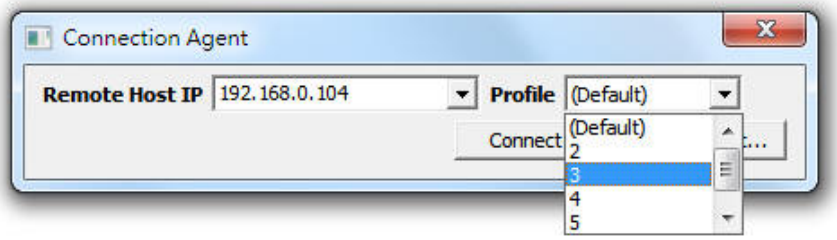
3.5 Setup for Multi-monitor

3.5.1 Consoles and Profiles



A profile stores states and settings associated with a local console, including the window position, layout, saved login information, IP address of server... etc. To invoke a console with specific profile, click **Connect to remote NVR** in CTC Union in Start Menu. **Connection Agent** dialog will be opened.

To select a profile, use the **Profile** combo box.



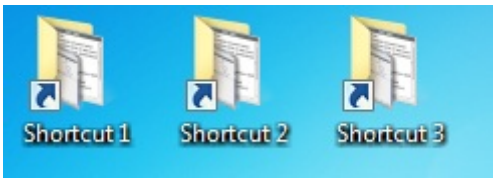
IP address of the remote server must be specified before connecting. If the server and console is on the same computer, enter 127.0.0.1 in IP address.

Click **Make Shortcut...** button and a shortcut will be created in windows desktop. Simply double click on the shortcut and the console with this profile will be invoked. Rename the shortcut or it may be overwritten next time a shortcut is created.

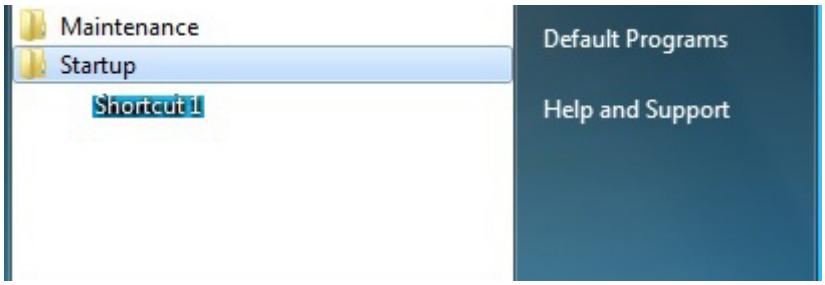
3.5.2 Multi-monitor

The following demonstrates how to setup CTC Union NVR for multi-monitor. The example uses 3 monitors but this can be applied to more or less monitors as well.

1. Set the multi-monitor to **Extended mode** in Windows. This is not a requirement but it's recommended for easier setup and more intuitive operations. In extended mode, multi-monitor act as a single desktop. Just navigate the mouse cursor in different monitors to access them. For more information, refer to the manual provided by video card vendor.
2. Create 3 shortcuts with different profiles. They may connect to the same NVR server or different ones. Or they may connect to local host using 127.0.0.1 as IP address.



3. Invoke the consoles using the shortcuts. There will be 3 windows. Move them to the monitors you want to place in and change the layout. To move among different monitors, simply move the mouse to the left/right edge of the monitor.
4. For best viewing experience, close menu of some consoles by pressing F10 on keyboard.
5. Next time the shortcuts are clicked, the consoles will be invoked as their last states and layouts. The shortcuts can also be placed in the Startup of Windows Start Menu.



Chapter 4.
SYSTEM CONFIGURATION

4.1 Log-in for first-time

Default accounts

If there are no accounts existing in the system, an administrator account is automatically created:

Account Name	admin
Password	1234

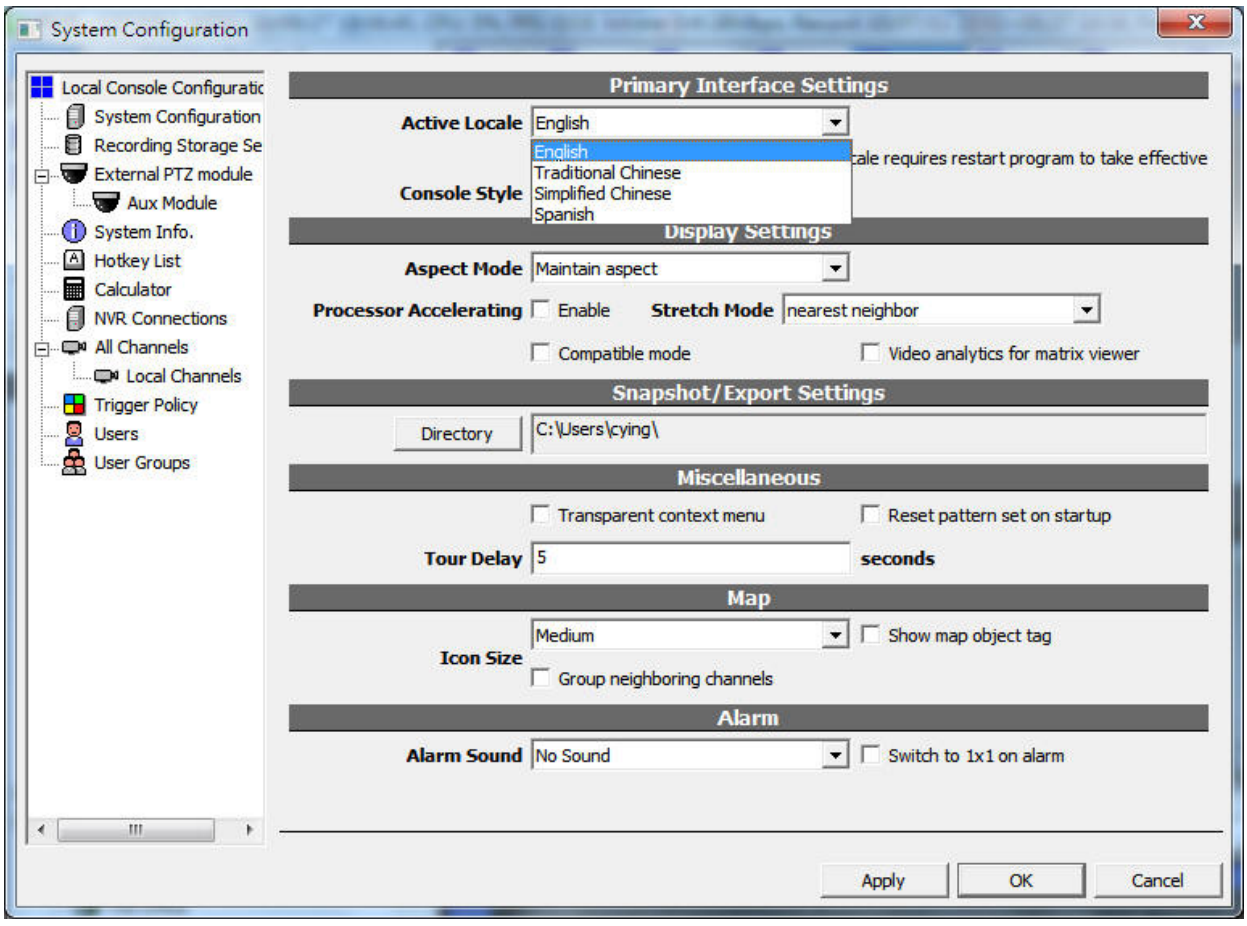
It is essential to change the password right after first login to ensure the security of the system. Please refer to related pages in this section about how to perform password change to a specific account.

4.2 Change Active Locale

4.2.1 Concepts

CTC Union NVR is designed as fully multilingual. Because of this, the factory default is set as English. You can change this by selecting "Cfg. Console":

Following dialog will appear.

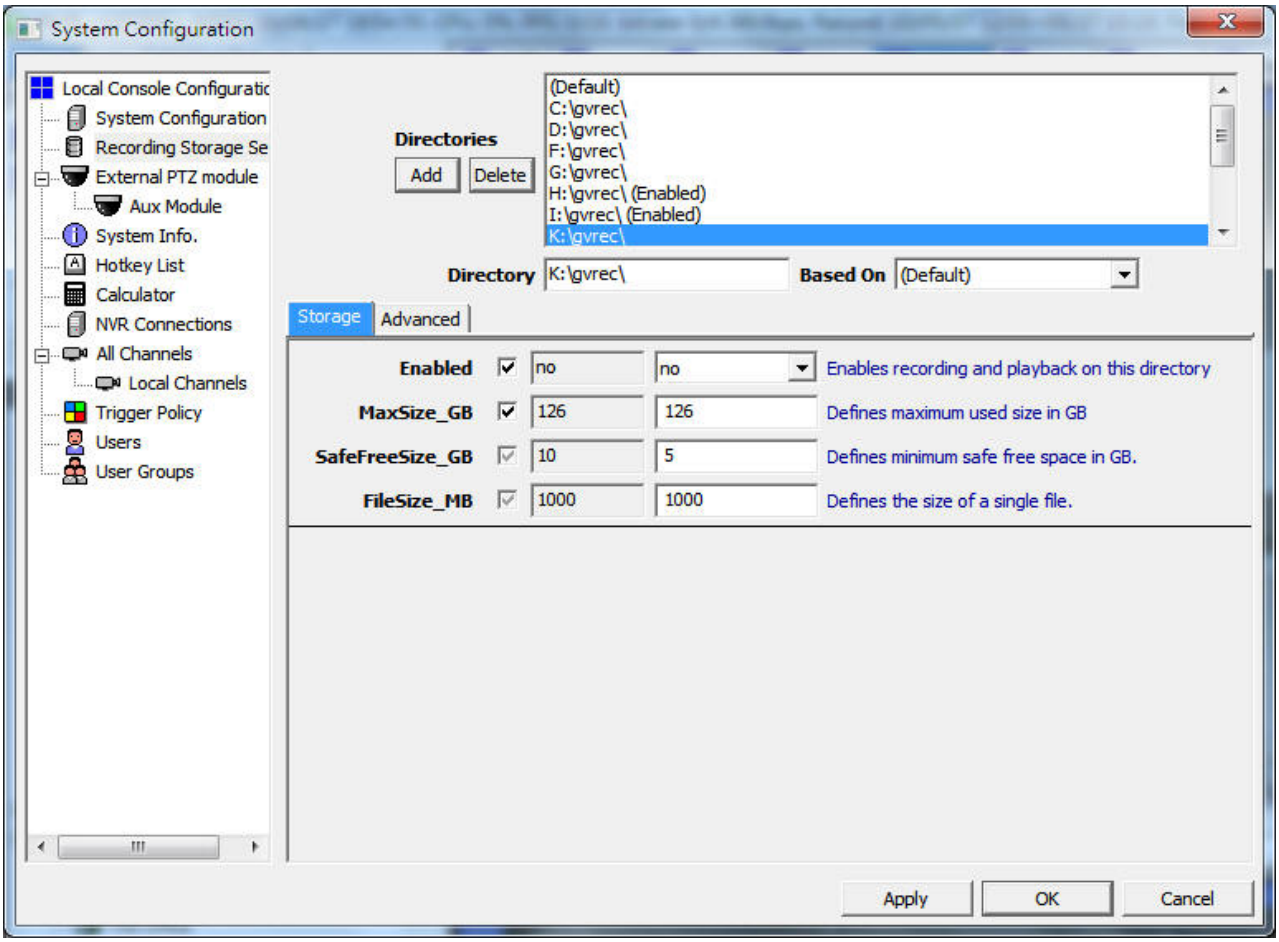


Select the first combo-box to change to your locale. After this, you need to restart the system to make the setting change take effective.

4.3 Configuration video storage

4.3.1 GUI Overview

Click on the "Cfg. Storage". Following dialog box will appear. If no directories have been enabled, this dialog will appear automatically after login.



4.3.2 Storage Space Parameters

Parameter	Description
Enabled	Is the directory enabled?
MaxSize_GB	Maximum space the recording process will utilize.
SafeFreeSize_GB	Safe-guard of free space. If free space is lower than this value the system will start to recollect space from old video data.
FileSize_MB	The size of a single file.
ReadCache_MB	This is the global setting of storage system read (playback) cache. Adjust this value according to your available memory and required performance.
WriteCache_MB	This is the global setting of storage system write (record) cache. Adjust this value according to your available memory and required performance.

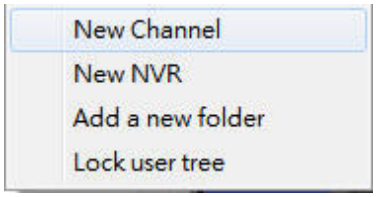
4.4 Adding a channel

4.4.1 Console operation

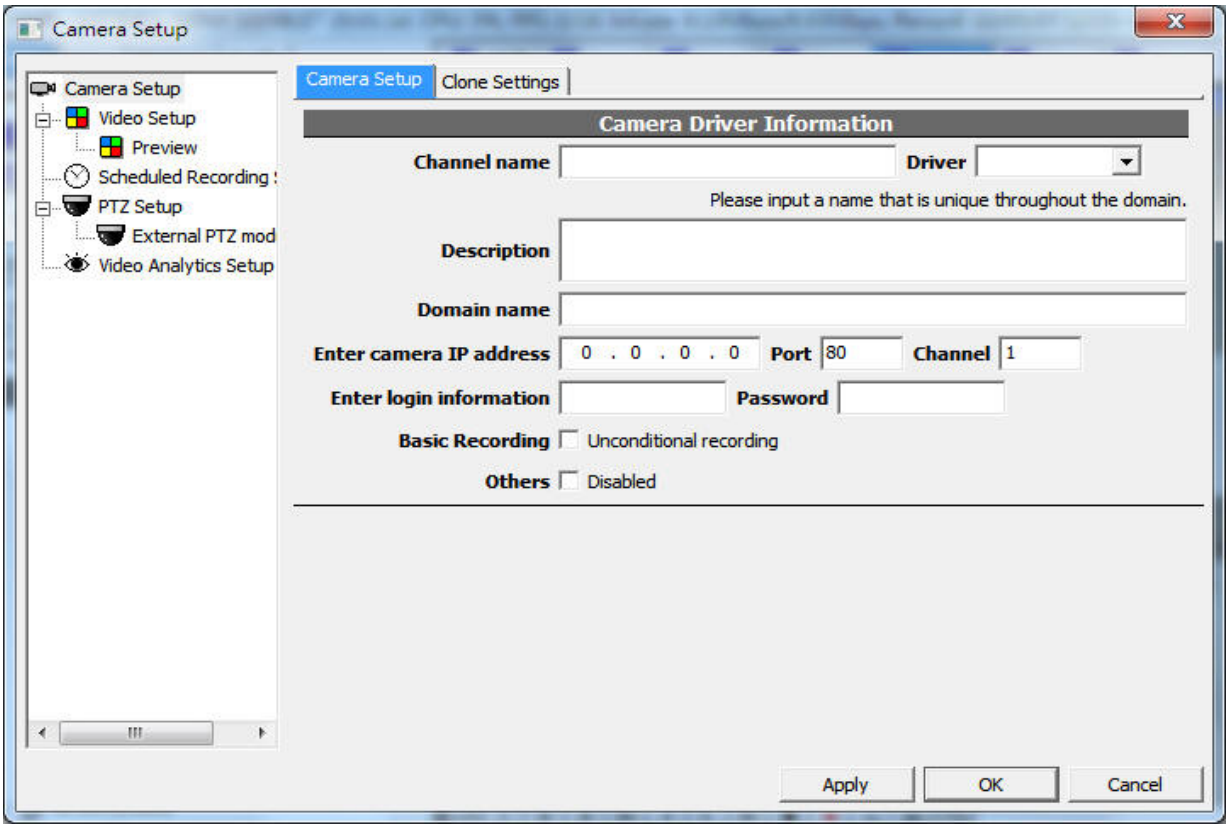
To start configuration, you need to get basic understanding about how the console is operated after login. You may read the first page of "Operation" section before you proceed with this page.

4.4.2 Adding a channel

Right-click on the empty area of the user tree panel, and then click "New Channel…"



Following dialog box will appear.



This is an integrated dialog with everything about channel configuration; camera setup, video setup, schedule recording setup, PTZ setup. Navigate through the tree nodes to change the items to be configured.

Enter the channel name, IP address, etc information.

Note: "Channel name" is an important signature of a channel and therefore cannot be changed after it's created. Nor can it be duplicated with other channels. You should choose the channel name carefully, as it associates all configuration and storage information with that channel. If you expect a more user-friendly description, you can use the "Description" field for the purpose.

4.4.3 Parameters

IP Address

IP address of the network camera

PortThe TCP/IP port number of the network camera

Channel

The channel number of the network camera. This value may apply if a single video server has multiple channels.

Unconditional Recording

Check this box, if you wish the NVR to start recording immediately. To configure other types of recording, you need to perform additional operations after channel creation.

Disable Channel

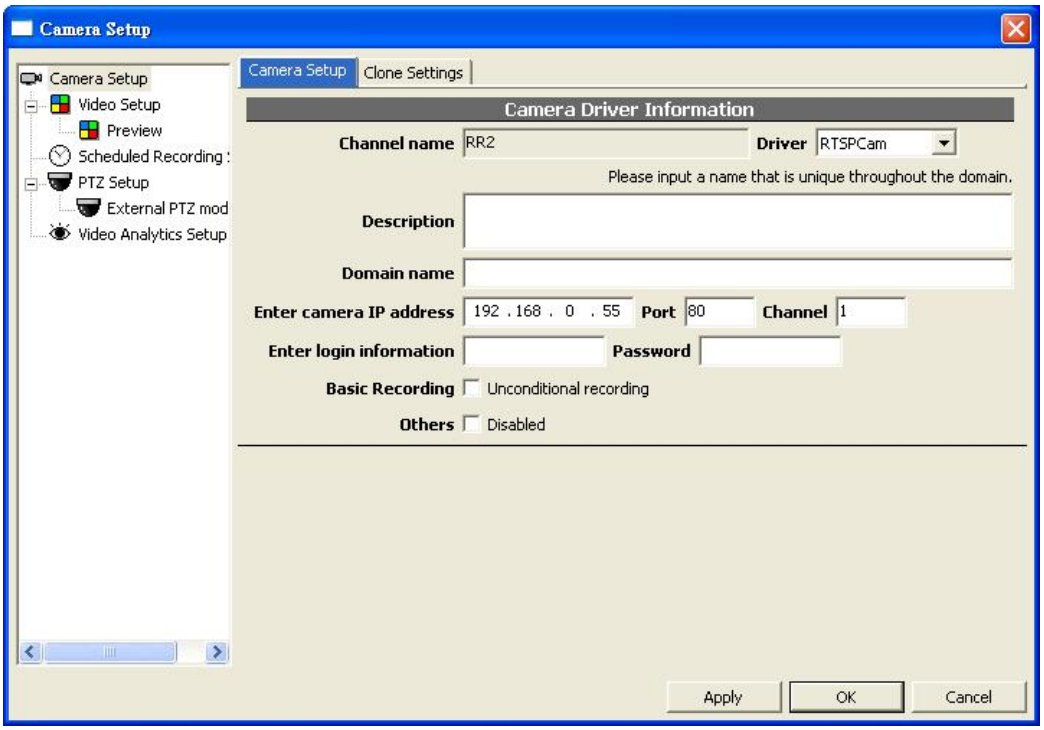
Temporarily disable the channel. NVR will not access any channel with this box checked. You can always enable it at later time.

4.5 How to add RTSP camera?

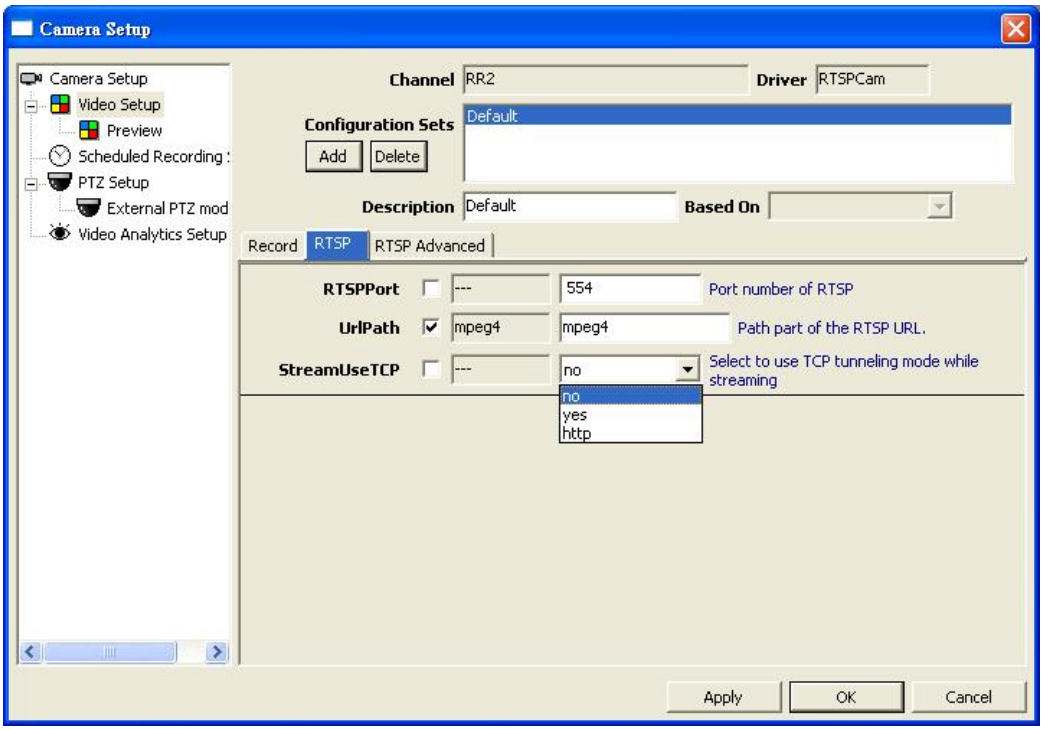
4.5.1 Instructions

Let's assume you have a RTSP video source as follows: **rtsp://192.168.0.55/mpeg4**
In this example, you need to perform following configuration steps in **Camera Setup**

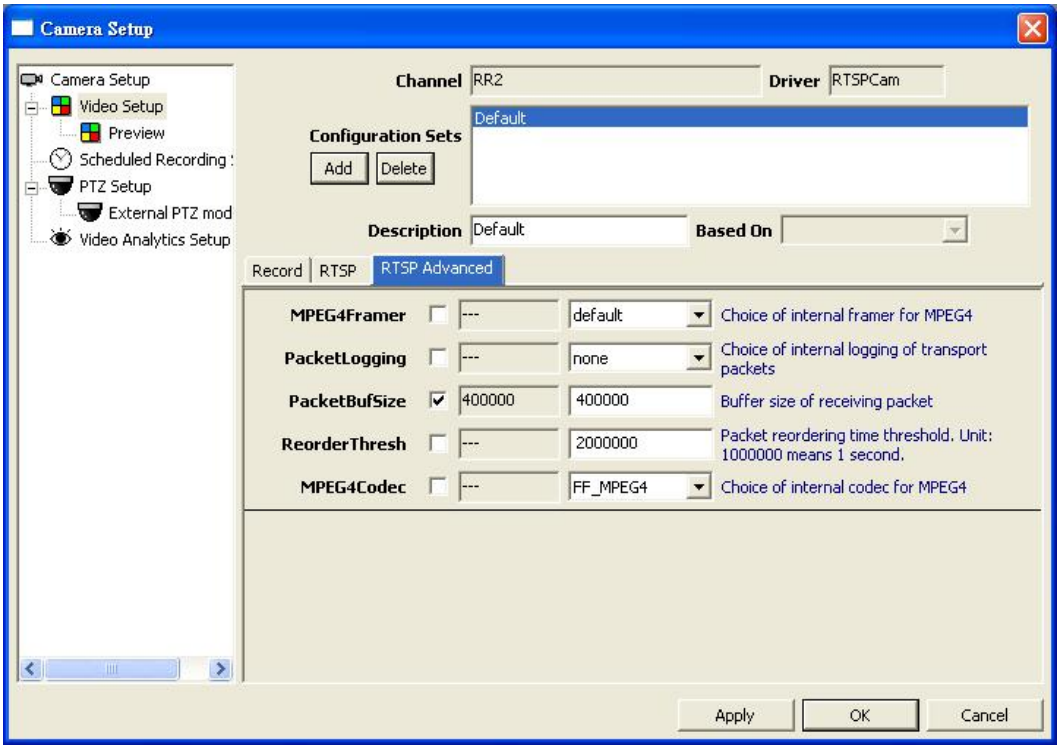
- Select RTSPCam as driver
- Enter correct IP address (**Port** is not related RTSP port)



Then perform following configuration steps in **Video Setup**:



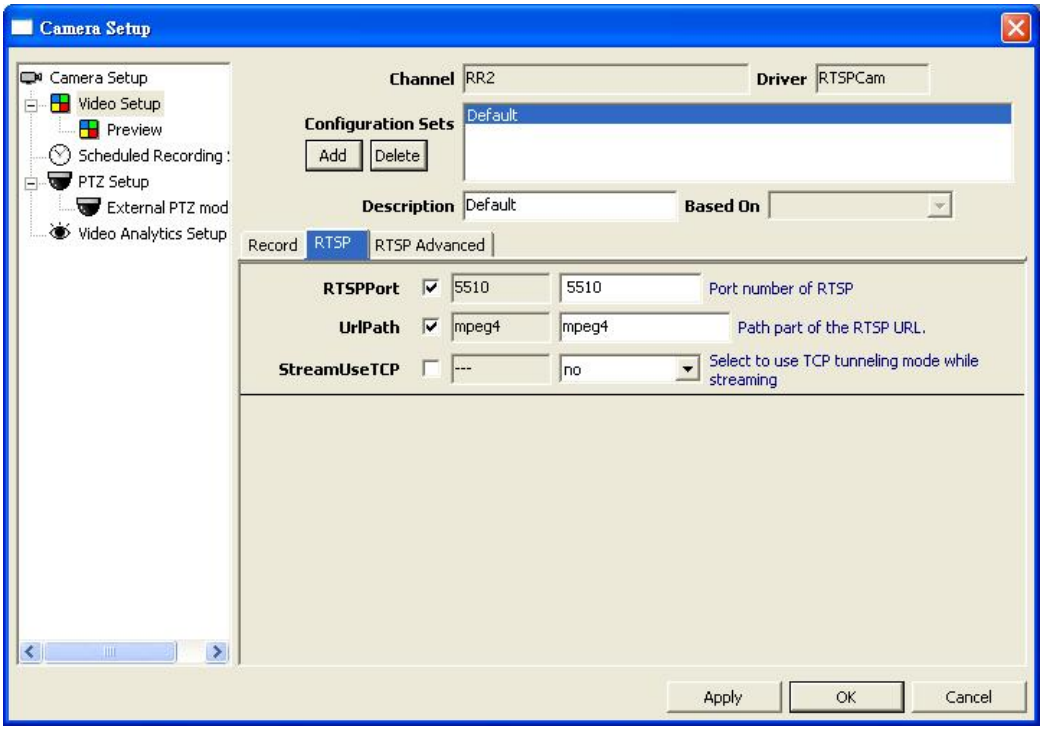
If your frame packet is extraordinarily large, you may needs this step to increase RTP buffer size (as follows):



4.5.2 How to deal with non-standard RTSP port?

RTSP has a standard control port number 554. If you have a non-standard RTSP control port, your RTSP URL will look like: **rtsp://192.168.0.55:5510/mpeg4**

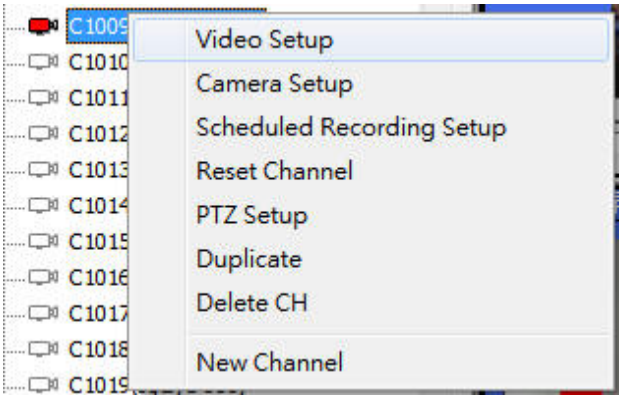
When you encounter this situation, you need to change RTSP Port:



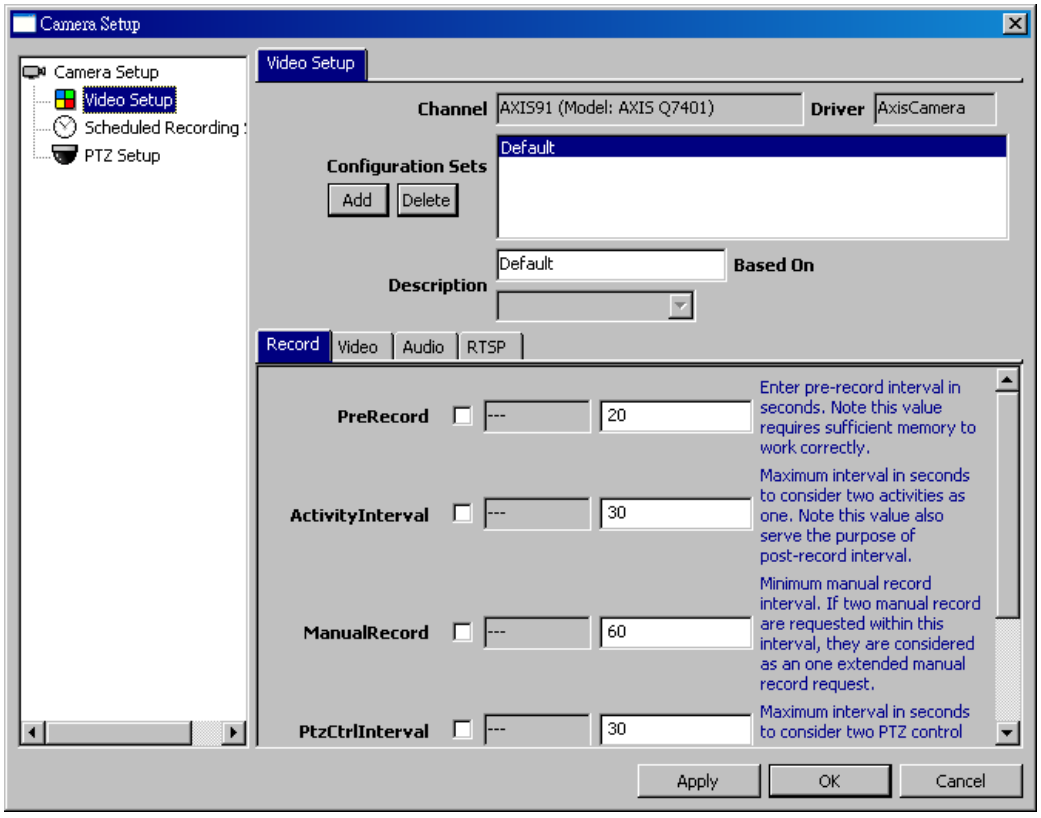
4.6 Setting video parameters

4.6.1 GUI overview

Right-click on the desired channel and select "Video setup".



Following dialog box will appear.



4.6.2 GUI overview

Each channel can be associated with multiple set of configurations. A configuration set is composed of multiple parameters. A configuration set can also "inherit" from another configuration set.

Each parameter, except for its value, can also specify its effectiveness depending on the status of the checkbox:

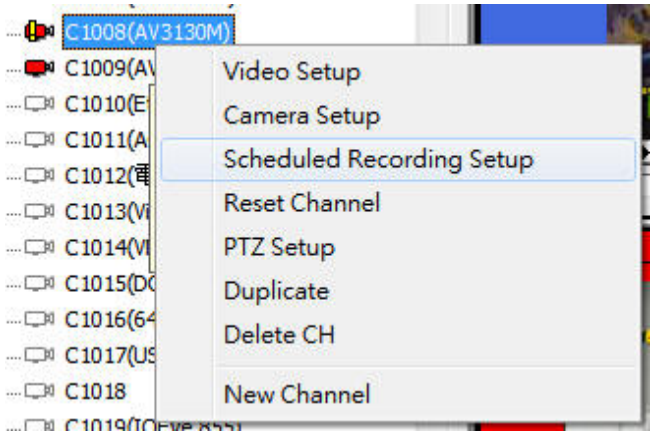
Effectiveness	Description	Icon
Unspecified	The value is not specified in current configuration set. The effective value depend on the inherited configuration set.	☑
Clear	The value is "cleared" by current configuration set, meaning the parameter will not be in the effective parameter list.	☐
Set	The value is set by current configuration.	☑

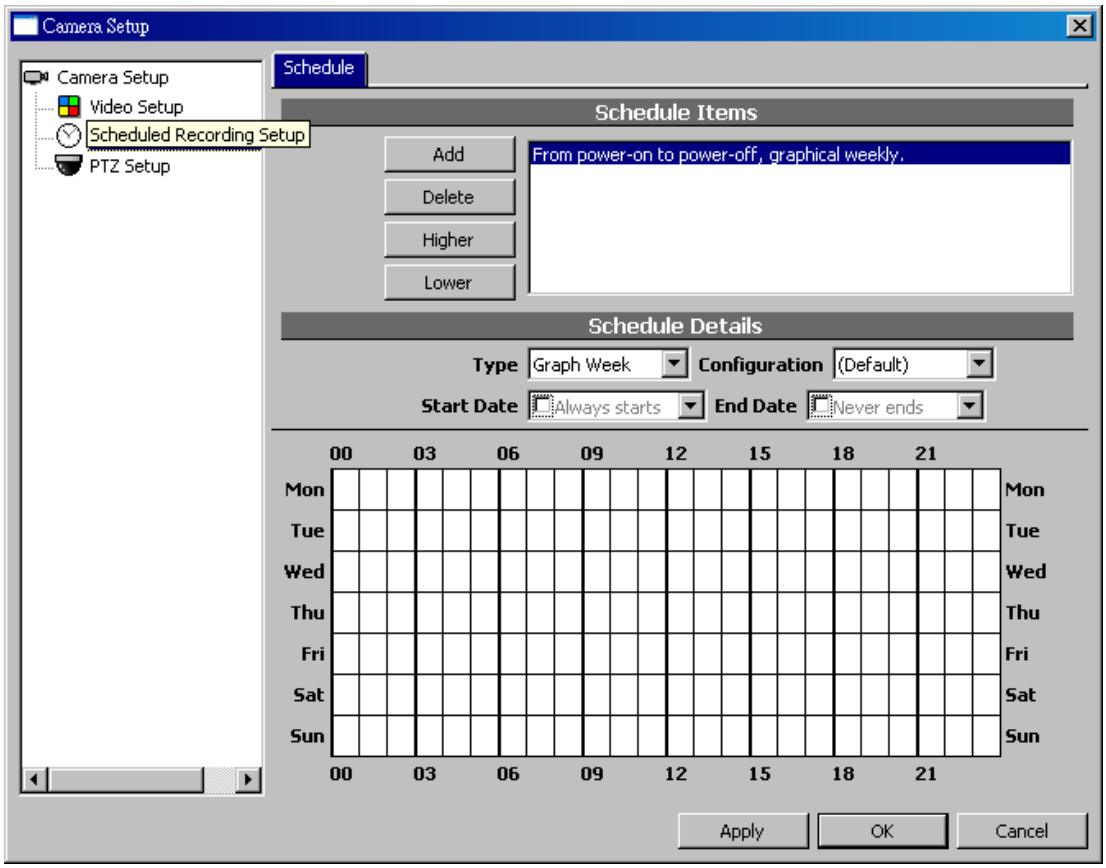
Carefully planning of configuration set can make your system extreme versatile to deal with various different situations. Especially note that the schedule config can associate to a specific configuration set.

The meaning of each parameter can differ from various vendors of IP cameras. You can refer to the description beside the parameter or look for vendor manuals for further information.

4.7 Schedule configuration

4.7.1 GUI overview



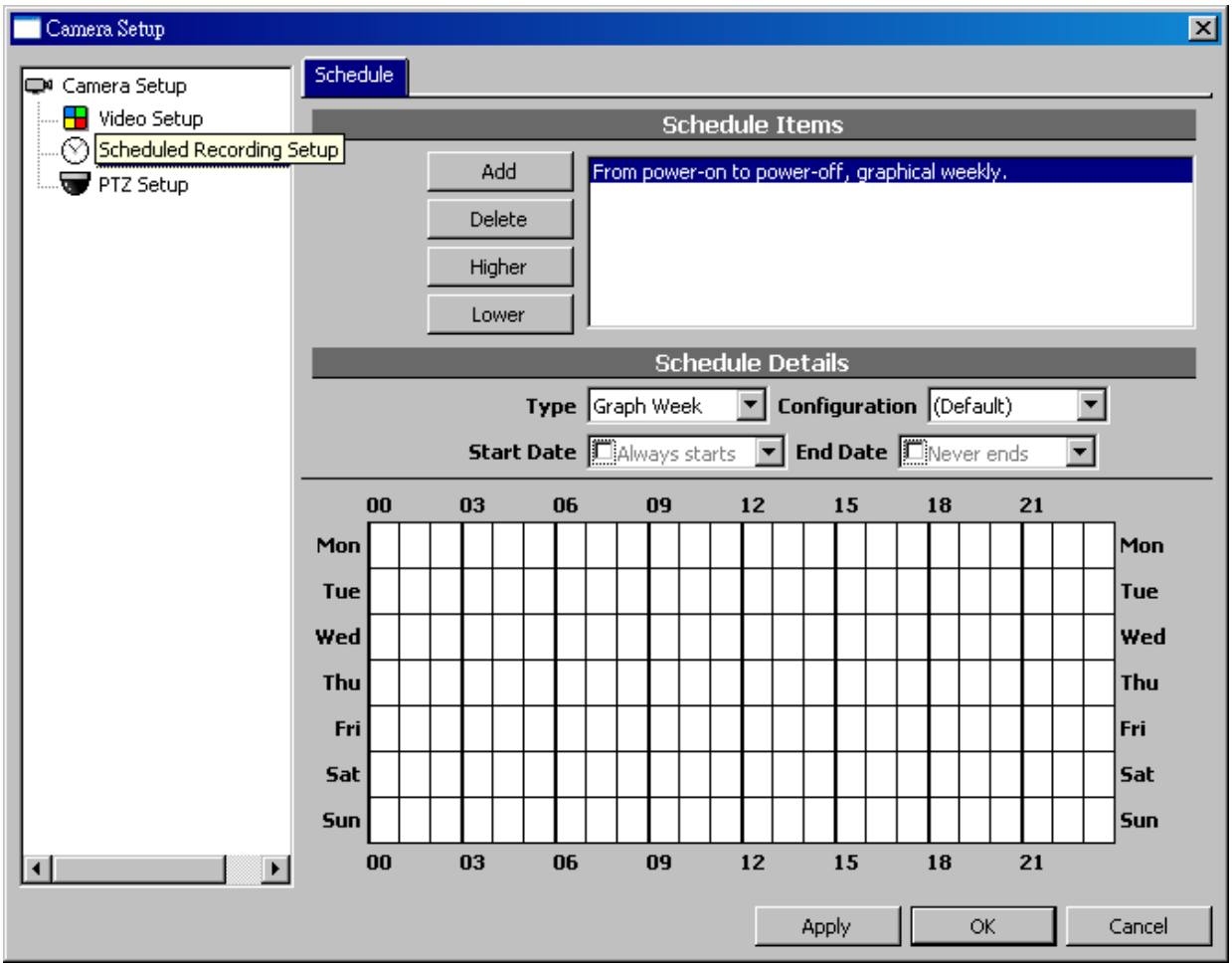


4.7.2 Configuration

Scheduled configuration items has various types, including whole day, daily, weekly (detailed), weekly (graphic), disabled. You may add multiple items.

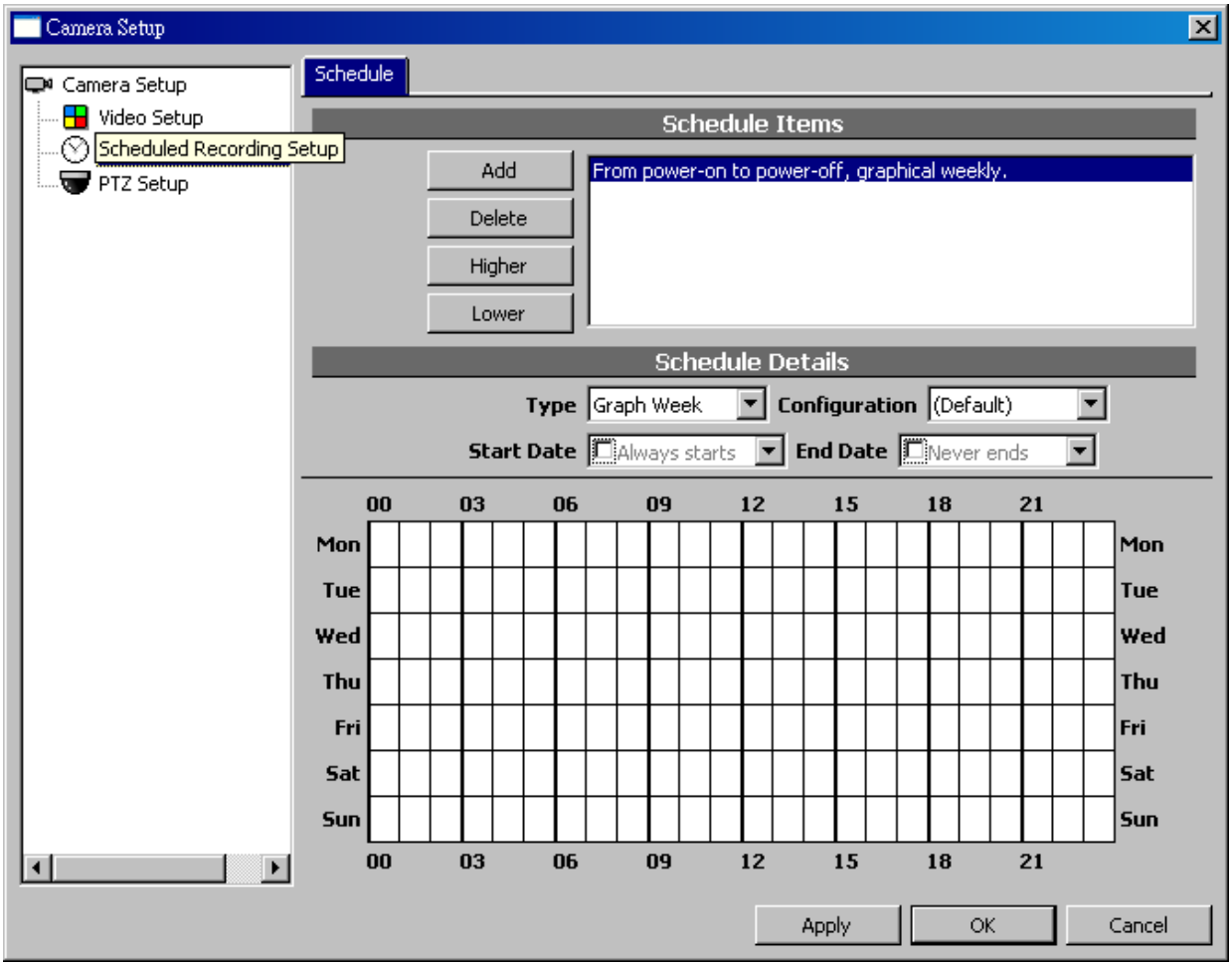
Type	Description
24x7	24 hours recording
Dail	Daily fixed interval . For example: daily 08:00:00 to 21:30:00.
Weekly (Detailed)	Resembles "Daily", but you may appoint to days within a week. For example: Every Monday, Wednesday, Friday 08:00:00 to21:30:00
Weekly (Graphic)	Weekly schedule. Each slot is united an hour.
Interval	Fixed interval, each starts with offset every X seconds, lasts Y seconds
Disabled	Disable current schedule item.

4.7.3 Weekly (Graphic) Schedule Configuration



Horizontal axis is time, with hour as the unit. Vertical axis is day in a week. Click to change the schedule status. Blue means enabled, white means disabled. Click any cell and drag will copy the state of the clicked cells to others.

4.7.4 Scheduled Video Configuration



You may specified a **Video Parameters** for each schedule configuration item . When that item is activated during appropriate time, the specified parameter will be used. If you choose **(Default)** for the value, schedule configuration will not affect video parameters.

When multiple schedule configuration item is in effect, the higher (in order) one will apply. To change the priority of the items, use **Higher** and **Lower** buttons.

4.8 Permission control overview

4.8.1 Concepts

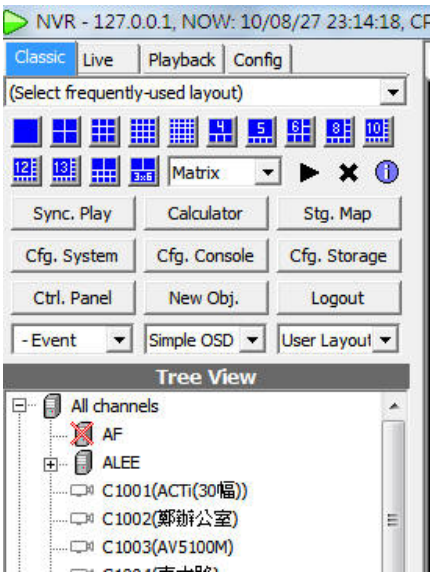
The permission control in CTC Union NVR is group-based. The administrator configures permissions for groups, and then assigns the user to one or more groups. Permissions are not assigned directly to the user, but rather associates to the user through groups.

4.8.2 Permission Types

System admin	Allows to control system-level configuration, such as permissions or creating a channel.
System operation	Allows creating or deleting a channel, editing maps and files.
All channel permissions	Configures permissions to all channels.
Specific channel permissions	Configures permissions to specific channels.
Channel live video	Allows to view live video
Channel playback	Allows accessing archived (playback) video.
Channel operation	Allows to operate on PTZ, manual recording, or channel resetting.
Channel administration	Allows to change settings.

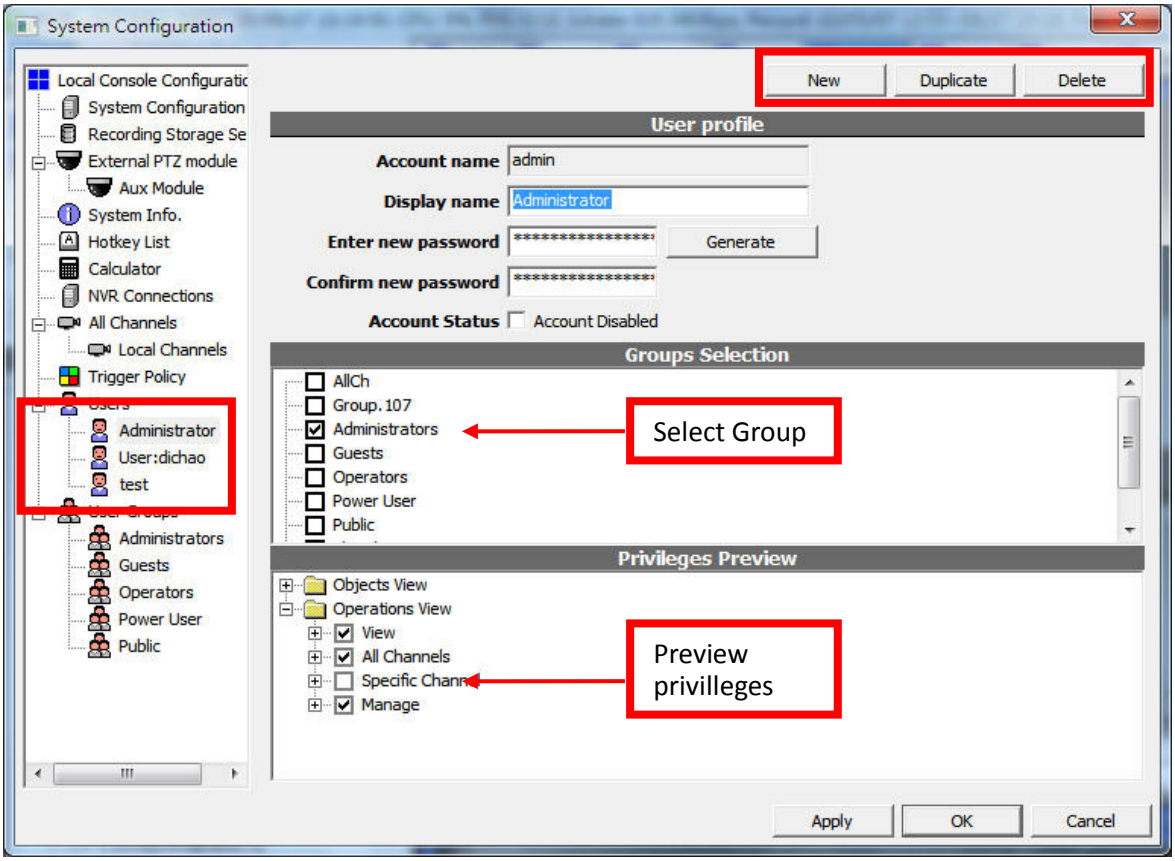
4.9 Adding a user

4.9.1 GUI overview



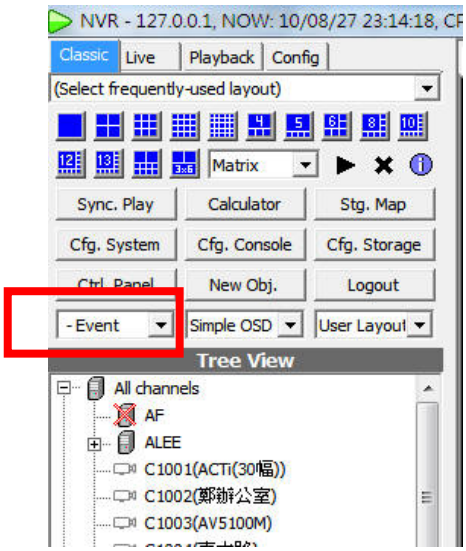
Following dialog box will appear. Please click on **Users** tree node.

If you want to create, delete, or duplicate a user, use the buttons on the top area.

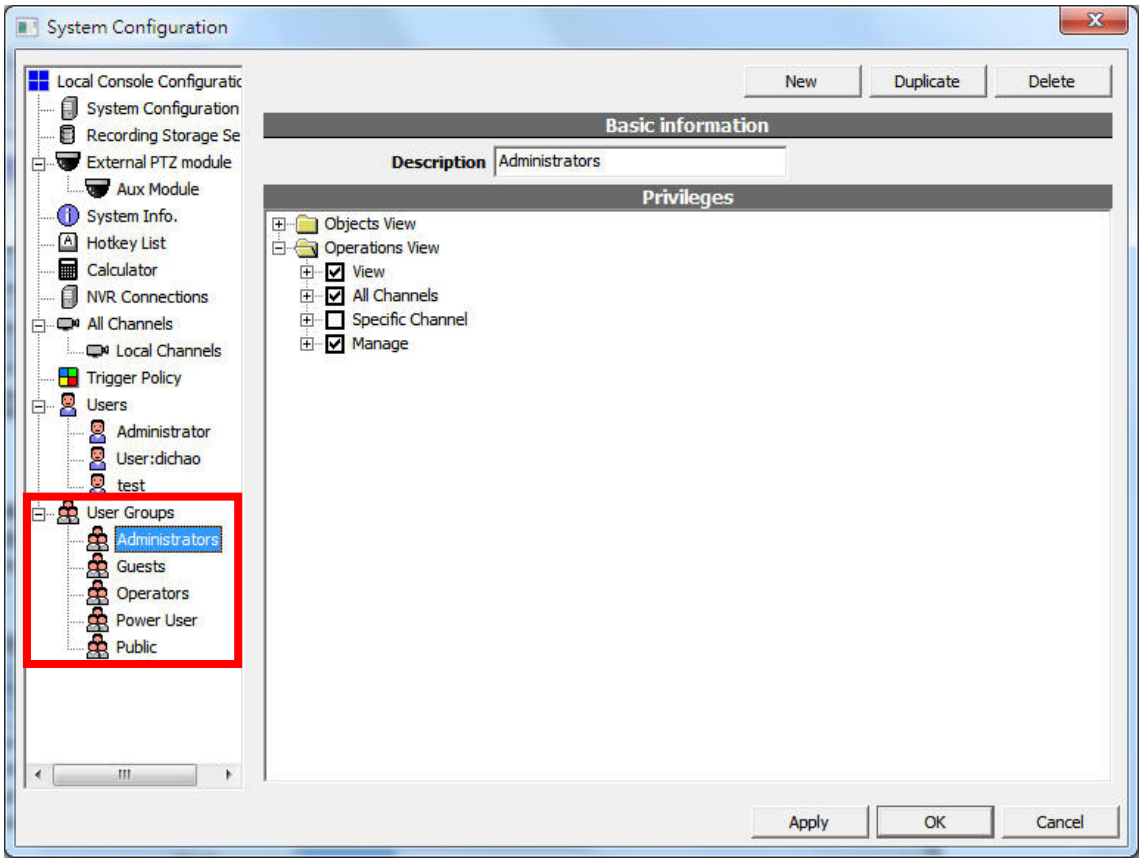


4.10 Adding a group

4.10.1 GUI overview

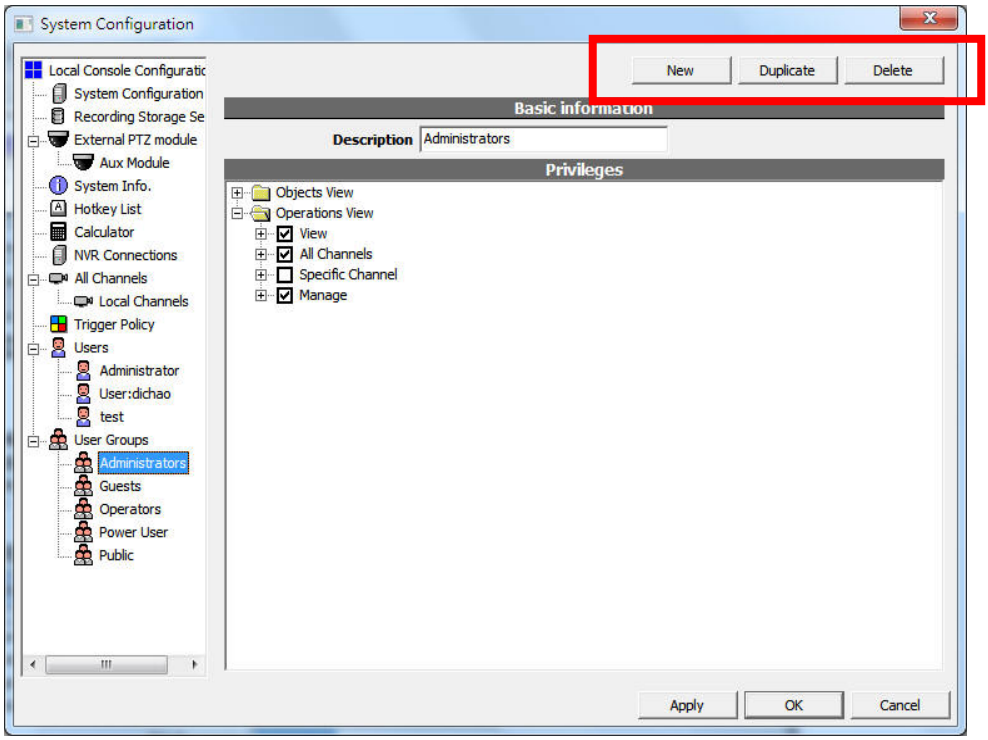


Following dialog box will appear.



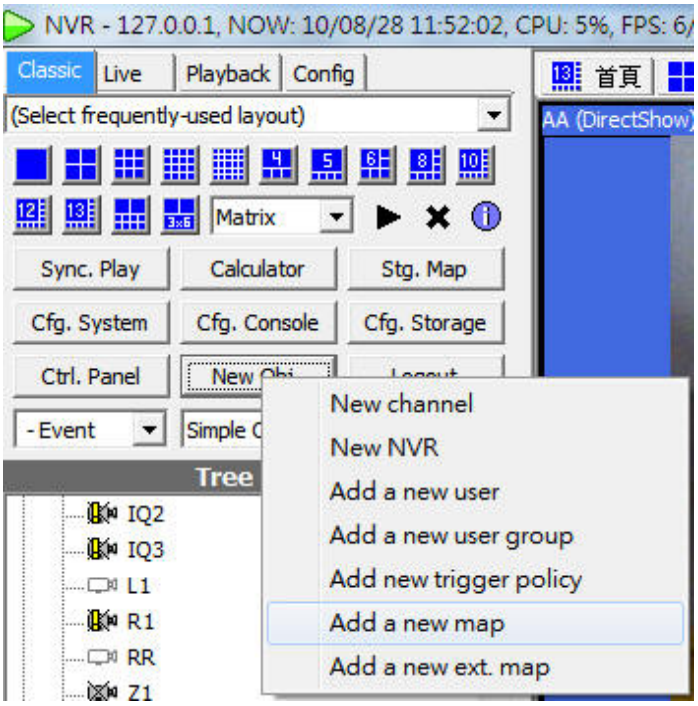
You can check the privillege you wish to grant to the group.

If you want to create, delete, or duplicate a user group, use the buttons on the top area.



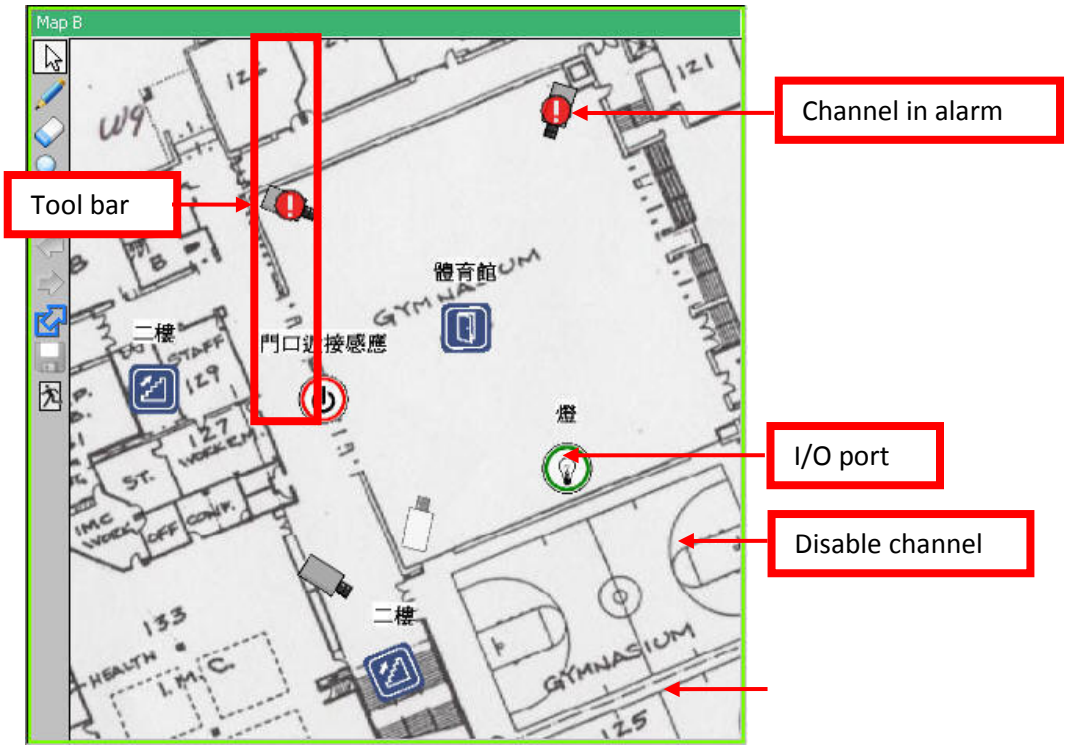
4.11 Creating Maps

4.11.1 Create New Map



Select **Add a new map** in menu of **New Obj**. The map can be dragged into **User tree** and be operated as it is in **system briefcase viewer**. To view the map, drag it in a player. Not all players support maps.

4.11.2 GUI overview



4.11.3 Toolbar Functions

Enter map viewing mode

Enter map editing mode

Enter delete object mode

Enter map panning mode

Zoom-in map

Restore 1:1 view of map

Map properties

Map hyperlink

Save changed map

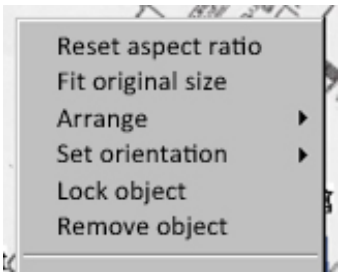
Exit map editor

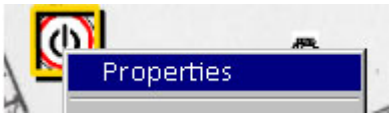
4.11.4 Adding Items

Bitmap	Drag a JPEG/BMP file in the map. Or drag a previously uploaded file from **system briefcase viewer**.
Channel	Drag channels from **system briefcase viewer** or **user tree**.
Hyperlink	Assuming you want to add the link of map A in map B. 1. Open both map A and map B in players. 2. Adjust the view of map A with zoom in/out. 3. In the toolbar of map A, drag **Map hyperlink** icon to map B.
IO port	Drag IO ports from **system briefcase viewer** or **user tree**.

4.11.5 Basic Operations

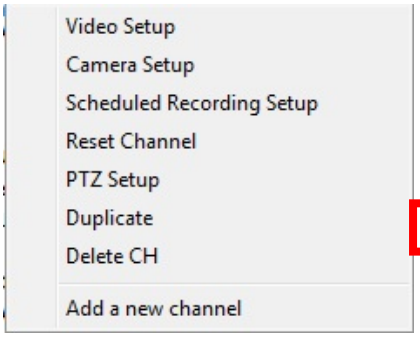
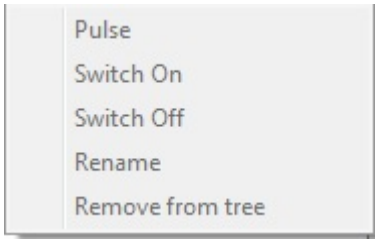
Not all operations are available for all objects.

<table>
<tr><td>Reset aspect ratio</td><td> 

Reset the object to its original aspect. Only applies to Bitmaps.</td></tr>
<tr><td>Fit original size</td><td>Reset the object to its original size. Only applies to Bitmaps.</td></tr>
<tr><td>Arrange</td><td>Arrange the object's display order(Z order). "Back" objects covered by "front" objects are not visible.</td></tr>
<tr><td>Set orientation</td><td>Set orientation of the object to 0/90/180/270 degrees.</td></tr>
<tr><td>Lock object</td><td>Position/size/direction of a locked object cannot be changed. Its "property" dialog is still accessible if available for that object type.</td></tr>
<tr><td>Properties</td><td> 

Invoke the property dialog to edit additional information such as description or stereotype(icon). Only applies to hyperlink and IO port.</td></tr>
<tr><td>Remove object</td><td>Only the map object is deleted. The entity the object represents to will not be deleted.</td></tr>
<tr><td>Mouse operations</td><td>
Rotate/resize
Move
Resize</td></tr>
</table>

4.11.6 Special operations

Channel operation		**See also :** ● Setting video parameters ● Schedule configuration
IO port		**See also** IO Port

4.12 External Maps

4.12.1 Create New Map

4.12.2 Toolbar Functions

Enter map viewing mode

Enter map editing mode

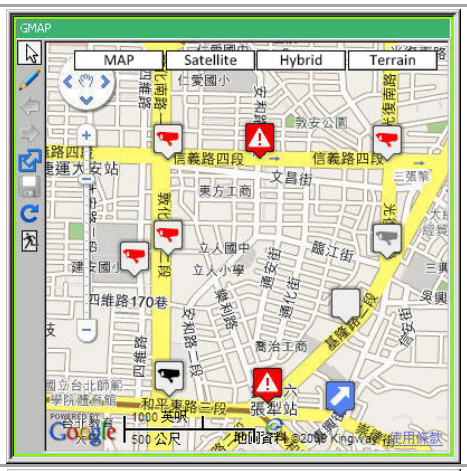
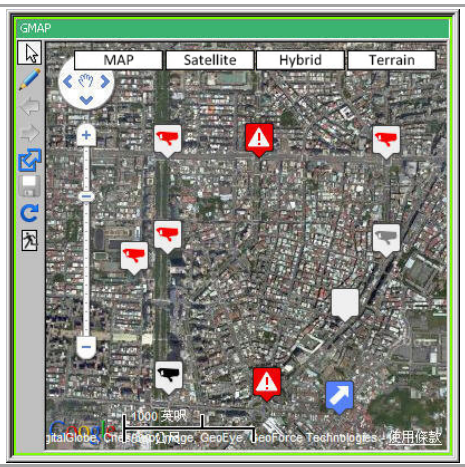
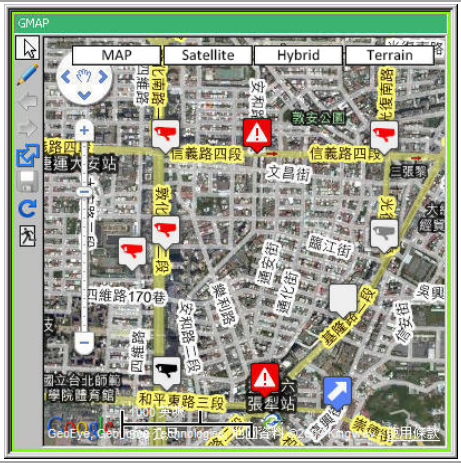
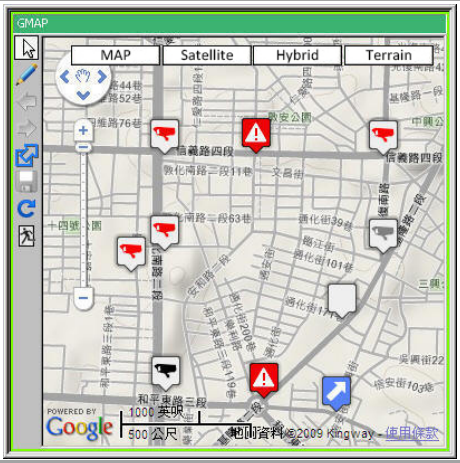
Added a bookmark of current map and current view in **system briefcase**.

Save changed map

Reloading the map from map server. Any unsaved changes will be discarded.

Exit map editor

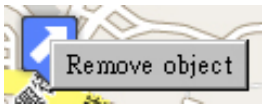
4.12.3 Basic Operations

Zoom In	Use mouse wheel or click the scale bar on map.
Change Map Type	   

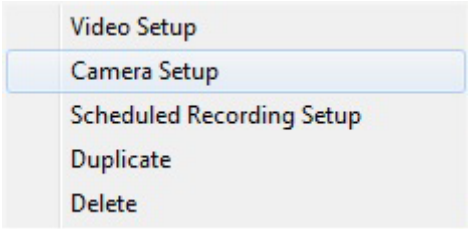
4.12.4 Adding Items

Channel	Drag channels from **system briefcase viewer** or **user tree**.
Hyperlink	Drag a map hyperlink from briefcase viewer or from internal map viewer.
IO port	Currently unsupported

4.12.5 Basic Operations of Objects

Remove object	 Object can only be removed in editing mode.

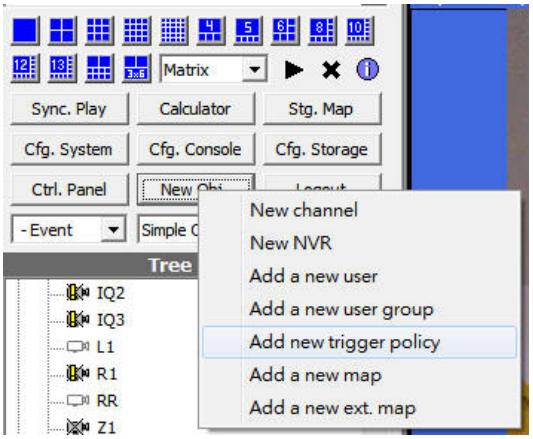
4.12.6 Special operations

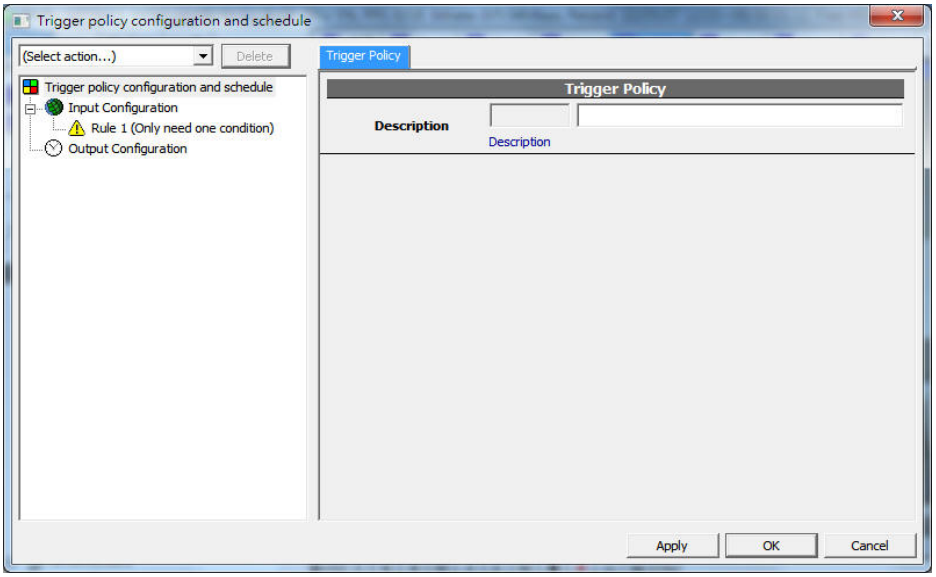
Channel operation	 **See also** Setting video parameters Schedule configuration

4.13 Trigger Policy

4.13.1 Adding New Trigger Policy

Click **New Obj** and select "**Add trigger policy**". If multiple trigger policies exists in a system, they are all in-effective.





4.13.2 Input Configuration

Channel trigger	Triggered by channel events such as video loss, alarm, IO port... etc.
System trigger	System events such as system start, system config change... etc.
Schedule trigger	Triggered at specified time.

4.13.3 Output Configuration

Channel control	Recording, IO control, PTZ control
Email	Send Emails
FTP	Upload file to FTP server

4.13.4 Channel trigger

on	IO on
off	IO off
vloss	video los
vreturn	video recovered
disabled	disabled
enabled	enabled
record	is/start recording
nrecord	not/stop recording
alarm	alarm triggered
alarm_progress	alarm in progress
nalarm	alarm dismissed

4.13.5 Schedule trigger

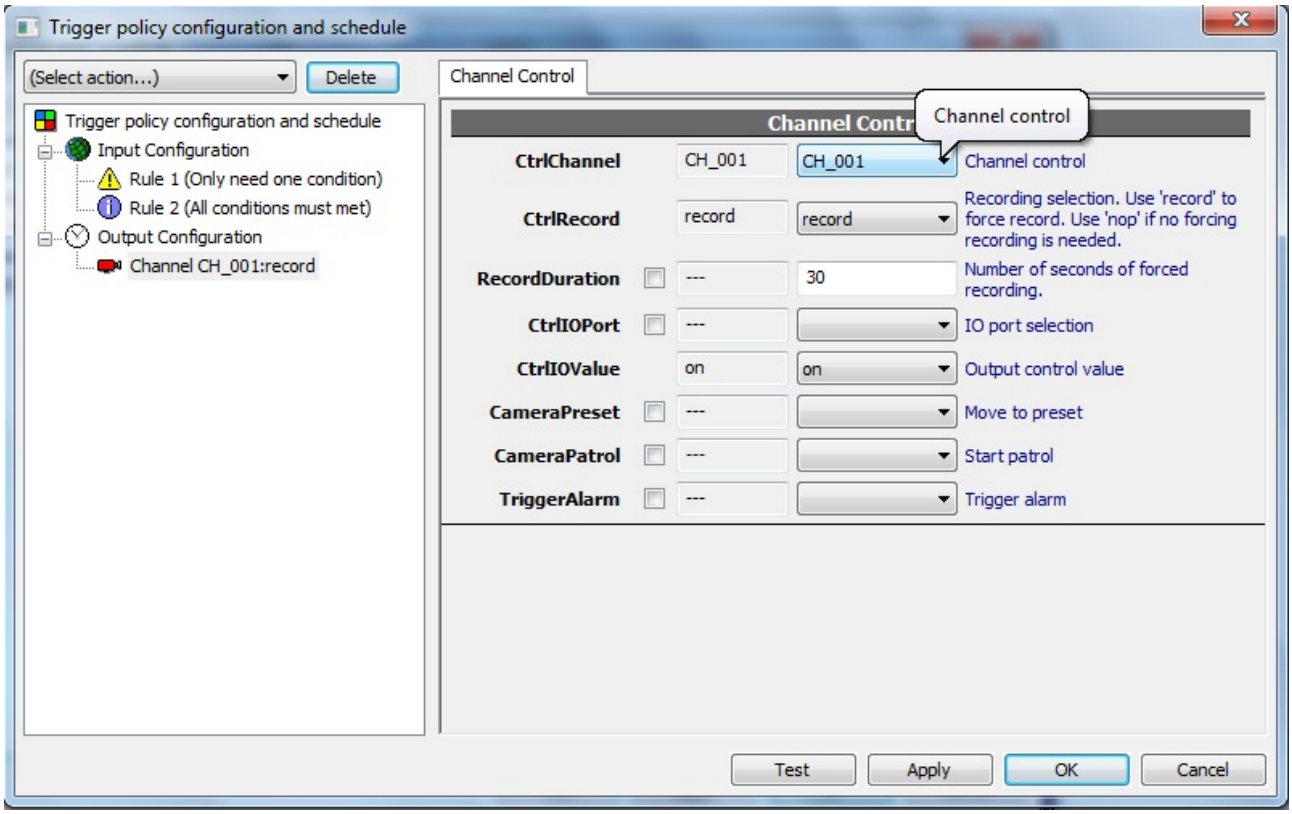
See also Schedule configuration

4.13.6 System trigger

any_vloss	any video loss
system_start	system start
error_restart	system start after error shut down
system_config_change	system config changed
channel_config_change	any channel config changed

4.13.7 Channel control

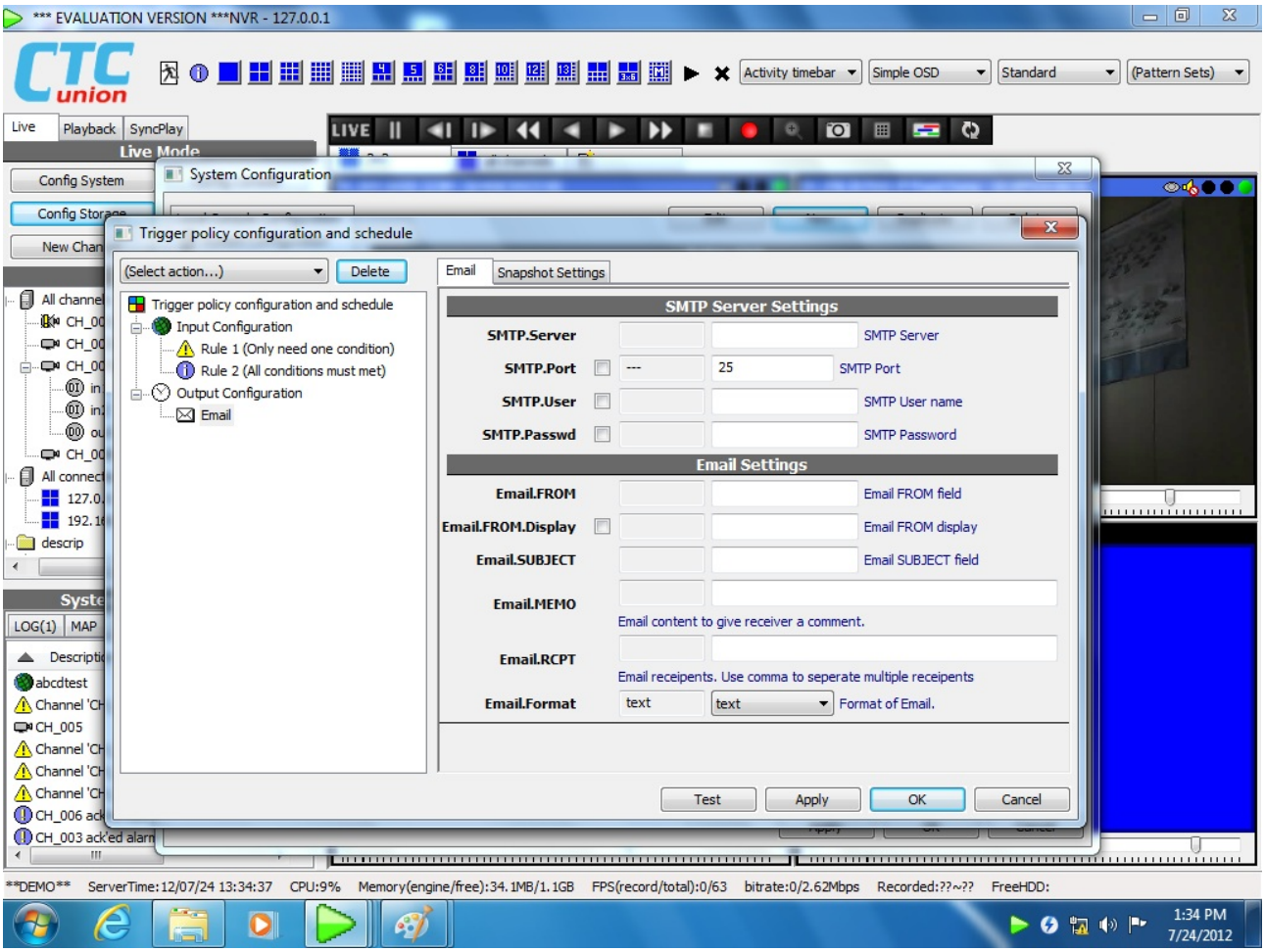
CtrlChannel	The channel to control
CtrlRecord	Recording selection. Use 'record' to force record. Use 'nop' if no forced recording is needed.
RecordDuration	Number of seconds of forced recording.
CtrlIOPort	IO port selection
CtrlIOValue	Output control value
CameraPreset	Move to preset



4.13.8 Email

Required parameters

SMTP.Server	IP or domain name of SMTP server
SMTP.Port	Port, usually 25
SMTP.User	User name to log in
SMTP.Passwd	Password to log in
Email.RCPT	Recipients. At least one is required. Separate multiple recipients with.



4.13.9 Snapshot

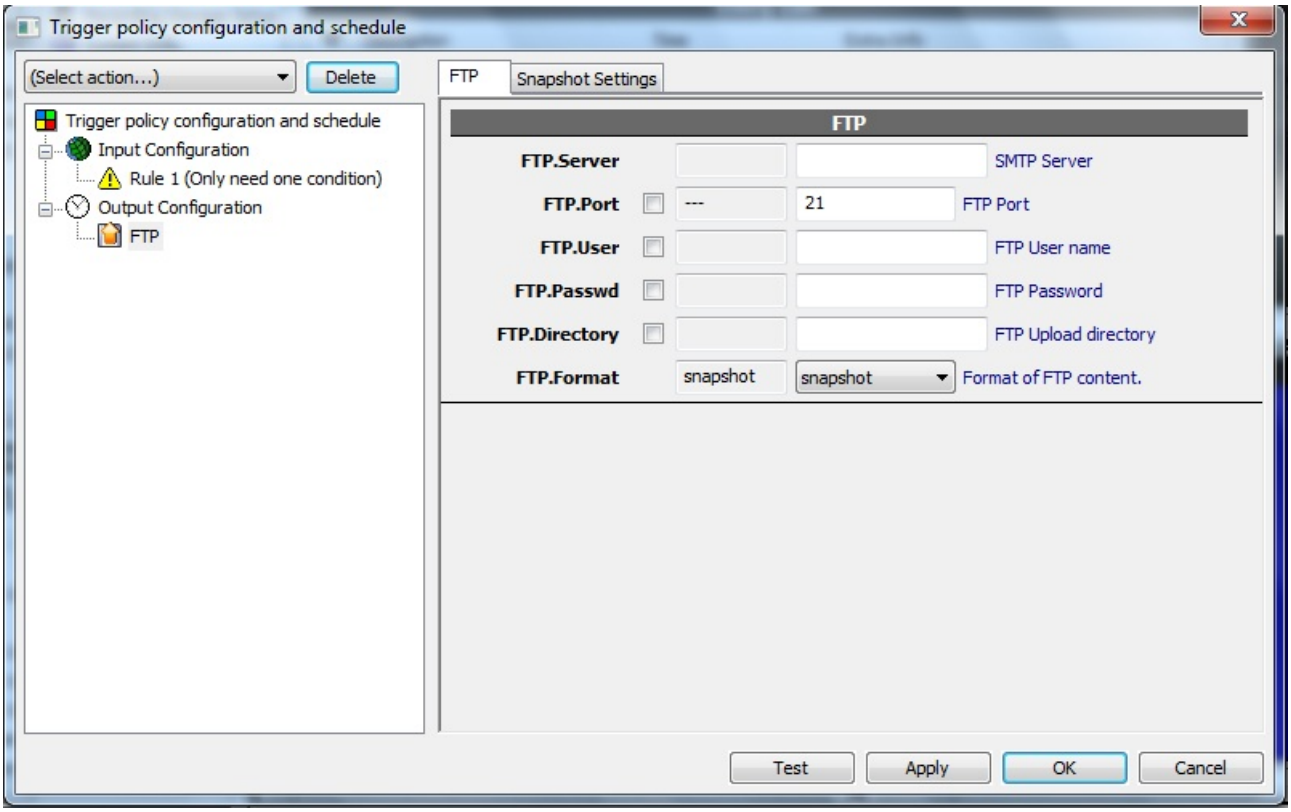
If "Email.Format" is set to "snapshot" and one or more channel control exist in this policy, a snapshot of the channels is attached to the email. Multiple channels will be composed as a single snapshot automatically. The dimension and quality of the snapshot can be configured in **Snapshot Settings** tab.

System was initiated.	12/08/08 13:45:51
System was terminated.	12/08/08 13:45:41
Protection lock error, s...	12/08/08 13:45:25
Storage is busy...	12/08/08 13:45:20
Storage is offline	12/08/08 13:45:20
CH_001 lost visual.	12/08/08 13:45:20
System was initiated.	12/08/08 13:45:20
System was terminated.	12/08/08 13:44:45

4.13.10 FTP

Required parameters

FTP.Server	IP or domain name of FTP server
FTP.Port	Port, usually 21
FTP.User	User name to log in
FTP.Passwd	Password to log in



4.13.11 Trigger policy logics

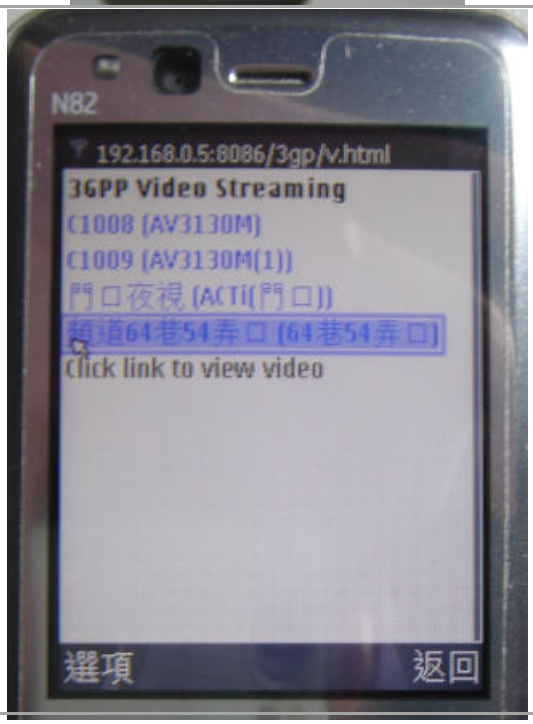
Multiple trigger conditions can exist in a single trigger rule. Action is done only when all or some of the conditions are met, depends on **AND** or **OR** logic being applied. Logic OR is always applied to the first rule. Logic AND is applied to any added new rule.

4.14 Mobile Phone Video Streaming (3GPP)

4.14.1 Overview

If you have a mobile phone that is compliant to 3GPP standard, then you can now use it to connect to our NVR to see live video streaming.
If your system is properly configured to support 3G video streaming, you will firstly use your browser to enter the URL to your NVR in the form:

Note: The "8086" is the default port number of the NVR built-in web server, the one that also serve Internet Explorer. This can be changed from system configuration.

Step 1. Entering first page, listing all channels available	Step 2. Viewing video streaming
	

4.14.2 How-to's

Here's a of list quick questions that might help you to find the information you need:

- Is the 3G video streaming default enabled?
- How to enable 3G video streaming?
- Why can't I see 3G video streaming?
- How to change default web server port number?
- What are the frame-rate or image size of the 3G streaming video? Can they be changed?

4.14.3 Is the 3G video streaming default enabled?

No.

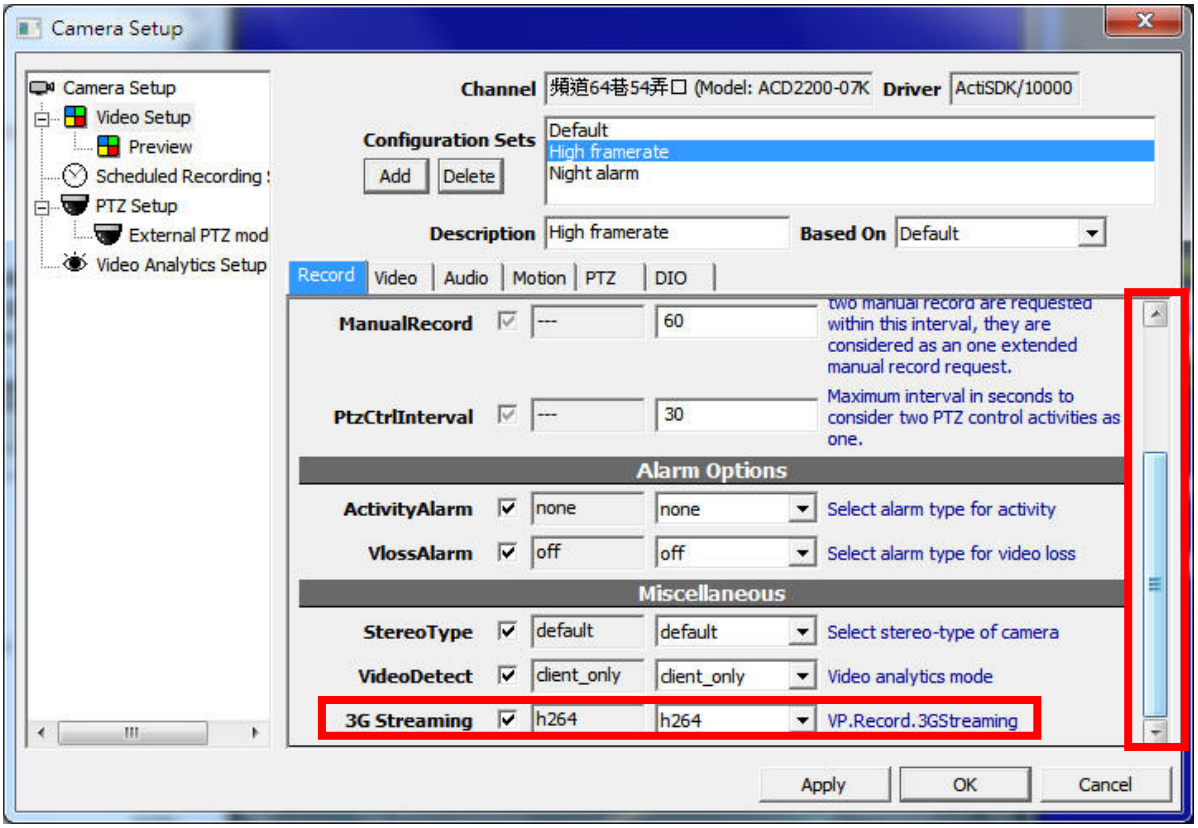
3G video streaming involves potential video transcoding. It has to be enabled in the server before you can really use it. Also, be informed that enabling this feature consumes certain resource (though not much) on the server.

4.14.4 How to enable 3G video streaming?

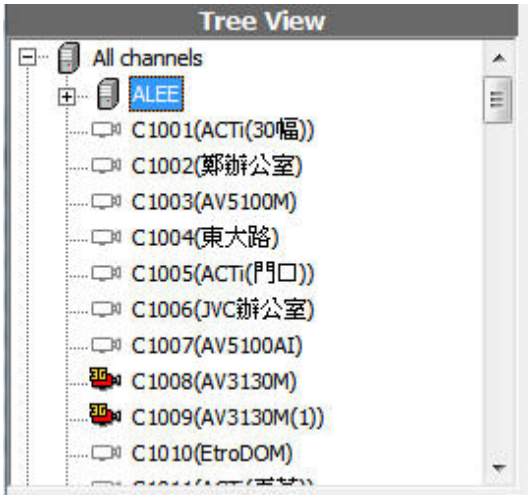
To enable 3G video streaming, open "Video Setup" of a designated channel. On first tab "Record", scroll down the page to look for attribute "**3G Streaming**".

There are three options:

off	3G video streaming is disabled.
on	Turn on the 3G video streaming, using MPEG-4 codec.
h264	Turn on the 3G video streaming, using H.264 codec.



If the 3G video streaming is successfully enabled, a small "3G" will appear beside the camera icon, indicating 3G transcoding is activated:



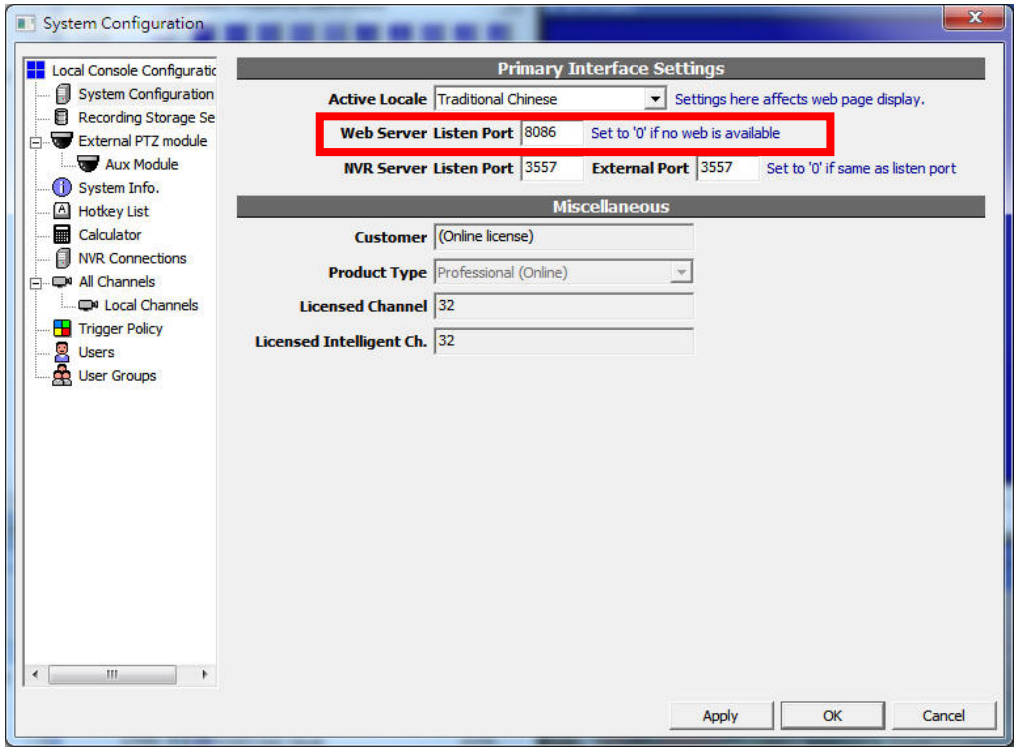
4.14.5 Why can't I see 3G video streaming?

There could be a number of reasons. Firstly, your mobile phone must support 3GPP standard for this function to work. Secondly, when the mobile browser tries to reach NVR web server, it will automatically determine the phone type. If this detection is not successful, you may not be redirecting to the correct page. In this case, enter the following URL:
http://<ip_to_your_nvr>:8086/3gp/v.html

If you still can't see video streaming, please contact our technical support, with your mobile phone model number (or device) available to us for testing and diagnosis.

How to change default web server port number?

Invoke "Cfg. System" dialog and change the value as indicated in the following picture:



4.14.6 What are the frame-rate or image size of the 3G streaming video? Can they be changed?

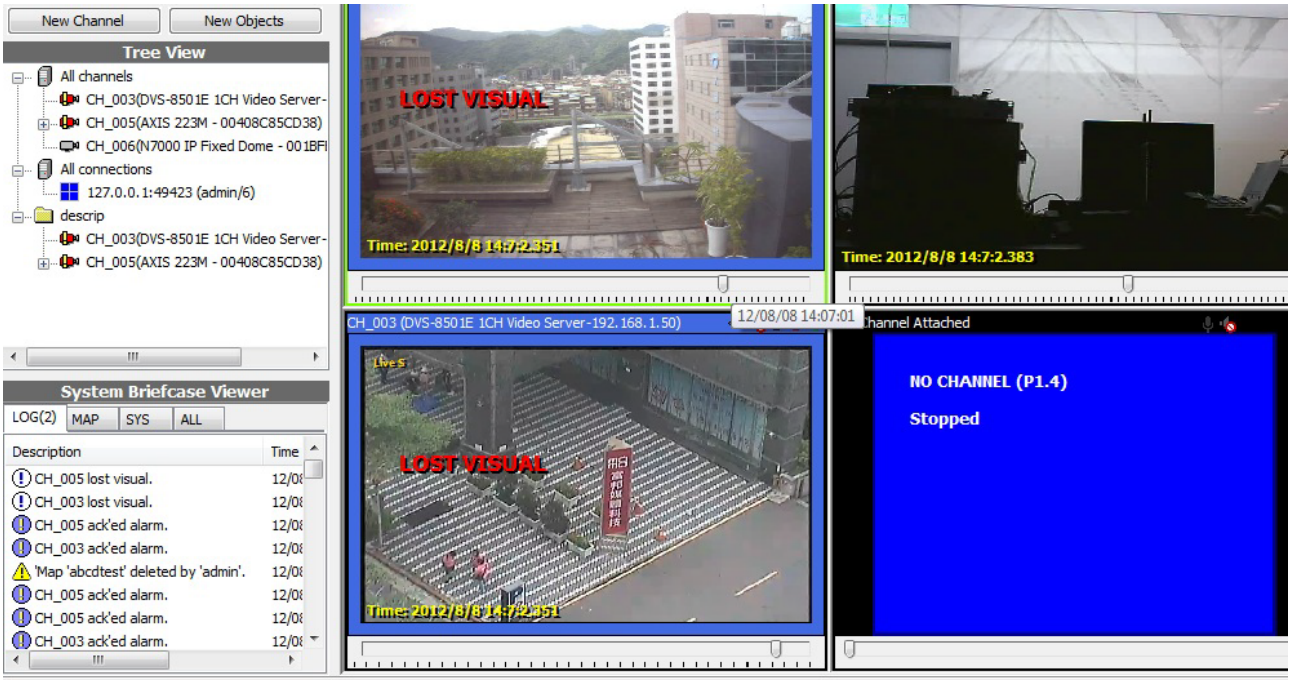
The image size and frame-rate is currently fixed at 320x240, 5 frames-per-second.

There is currently no GUI offered to change these settings. You can only choose to enable this feature or not.

Chapter 5.
NVR SYSTEM OPERATION

5.1 Console Overview

5.1.1 GUI Overview



5.1.1.1 Layout Control

Switch between the pre-defined NxN or special layouts.

Previous/next page.

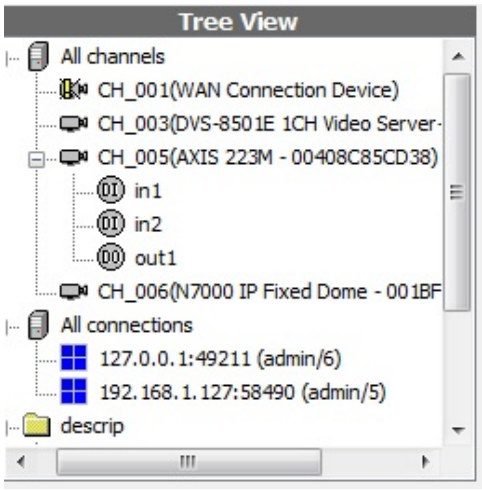
Stop all players.

Make all players show live.

5.1.1.2 System control

Sync. Play	Synchronize all players. When the button is sinked, playback control of all players are synchronized. **See Also** Synchronized playback
Logout	Log out. The local console will be closed but the system is not terminated. You will need to enter account/password to operate the system.
Calculator	Opens various configuration or tool dialogs. **See Also** User calculator
Stg. Map	**See Also** Storage report
Cfg. System, Cfg. Console	**See Also** Console setting
Cfg. Storage	**See Also** Configuration video storage
New Obj.	Add a new channel, user, group, map..., etc. **See Also** Adding a channel Adding a user Adding a group Creating Maps Trigger Policy
	From left to right respectively: **Toolbar type selector:** Set the default toolbar for all players. This overrides all individual players' toolbar settings. **OSD type selector:** Select OSD information level for all players. **Main layout selector:** Select default console layout type. **See Also** Using playback timeline

5.1.1.3 User tree

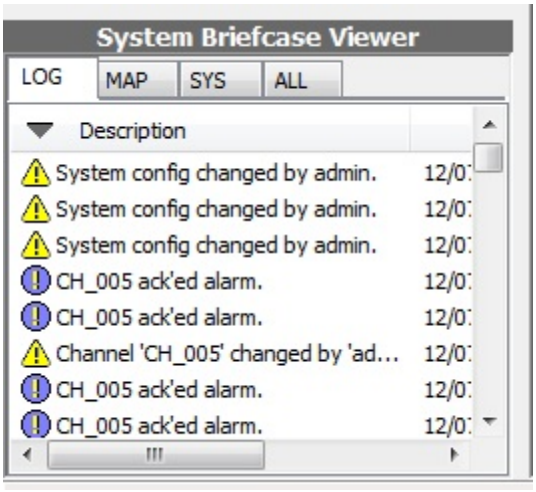


User can manage objects by creating folders and drag & drop to change the hierarchy and the order. Folders can also be renamed. Remind that the tree is global and local changes affect all remote GVNVR connected.

The node "All channels" are pre-defined and cannot be modified. Dragging a channel in "All channels" to a user-created folder creates its representatives which can be operated like the original channel item. But deleting a representative doesn't remove the channel from the system.

See Also Building user tree

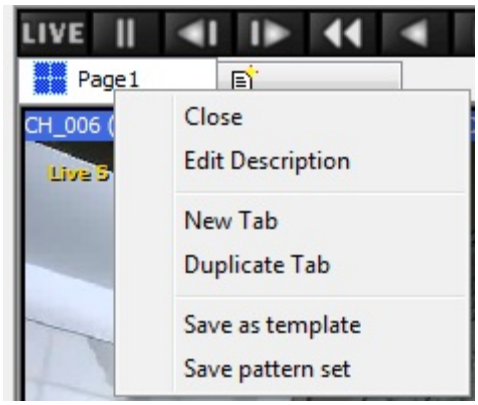
5.1.1.4 System briefcase viewer



A system briefcase viewer let the users browse system objects like user logs, channels, maps, users,.. etc. There are three components in system briefcase viewer; the filter, the header, and the list. The filter controls what types of items to be displayed. The header can be clicked to sort the items by different columns and different order. Right-click on different types of objects invokes their corresponding context menus. Items may also be dragged into players. Drag & drop behavior depends on the destined player state and the item type.

See Also Viewing logs

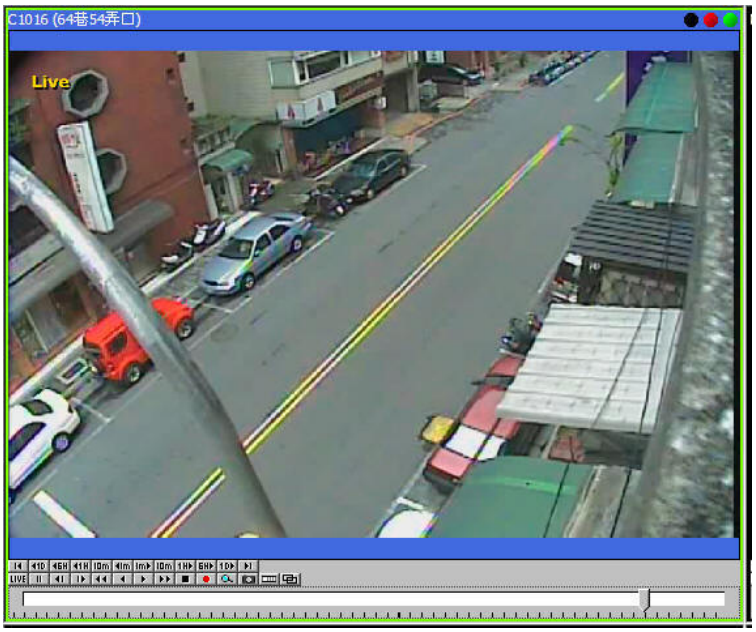
5.1.1.5 Pattern tab control



User can create and rename tabs in pattern tab control. Each pattern tab has its own layout and state.

See Also Managing layout pages

5.1.1.6 Player



There are three components in the payer; status bar, display, and toolbar. Status bar shows the title of the channel attached and its states. The three indicators on the top-right shows if the channel is recording (red), accessing recorded data(yellow), live video(green), or alarm. The toolbar is used to control the player.

See Also Player

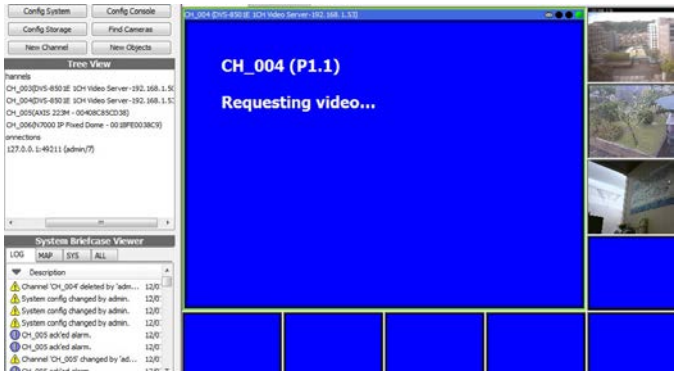
Player (Multi-Function-Display) Capabilities

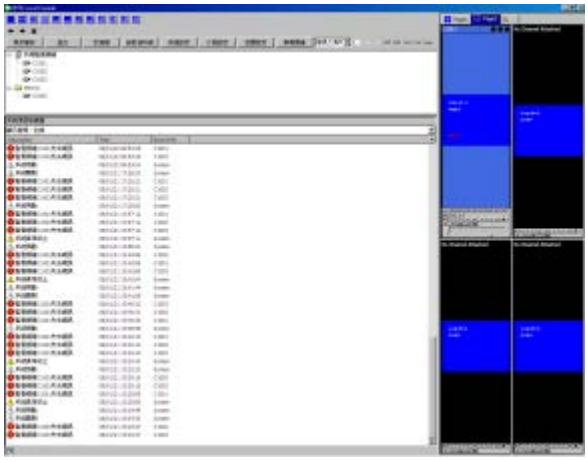
Each player slot in the console has an number as their identifier. Those are P1.1, P1.2.. P1.16, etc, as illstrated below. Their function is slightly different, as illustrated in the table following the picture.

Player identifier	Can play live & PB?	Can view maps	Can view Ext. Map
P1.1	Yes	Yes	Yes
P1.2	Yes	Yes	No
P1.3	Yes	Yes	No
P1.4	Yes	Yes	No
P1.5 ... P1.25	Yes	No	No

5.1.1.7 Splitter Control

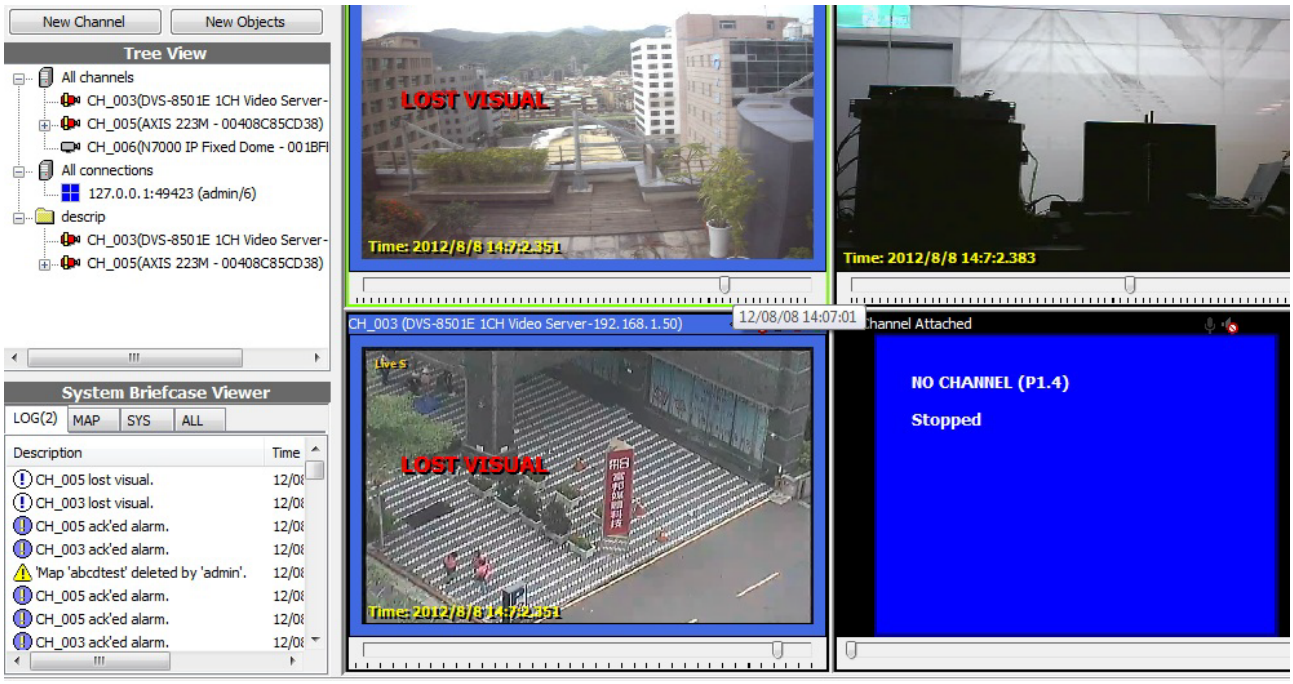
Hover mouse on these areas and the cursor will be changed to a two-way arrow. Users can hold left button and drag to adjust the size of different console components.



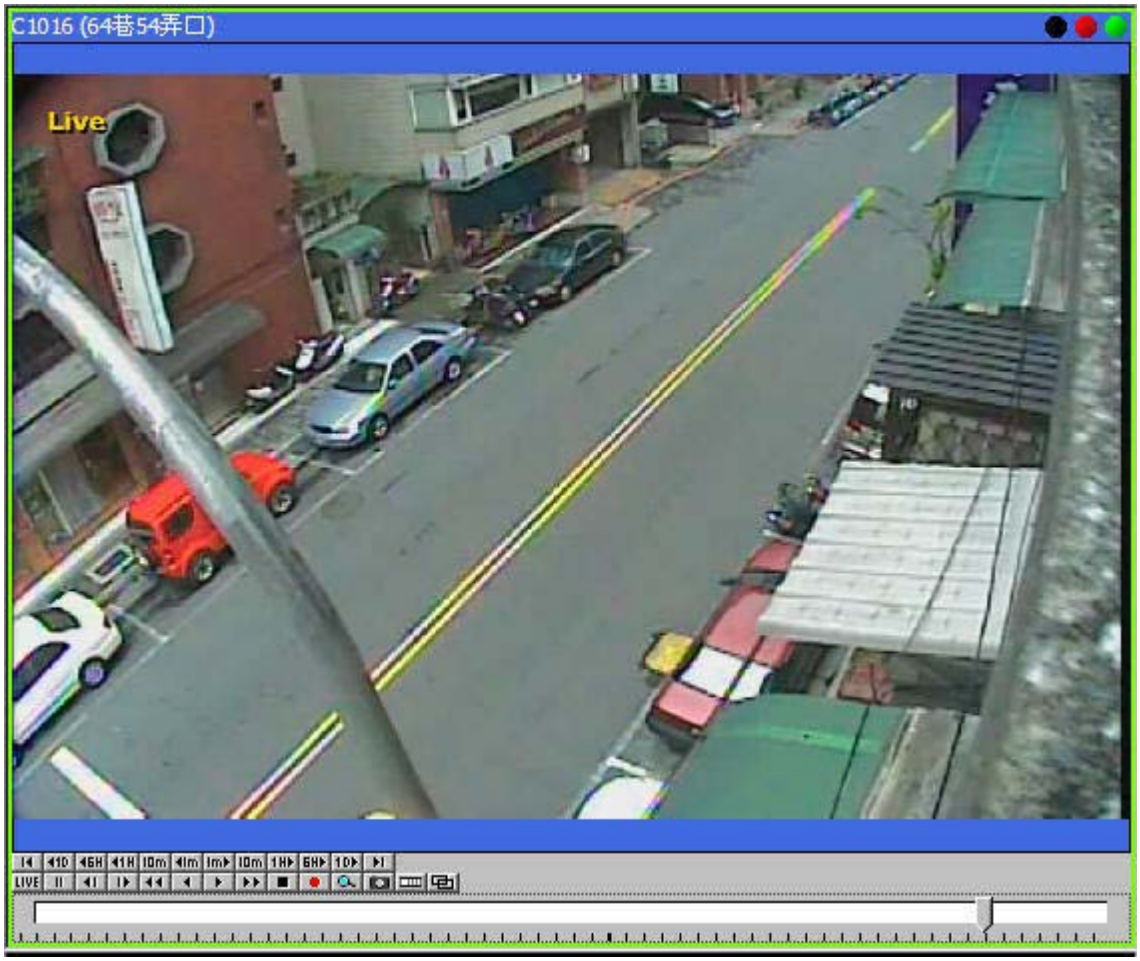


5.2 Viewing live video

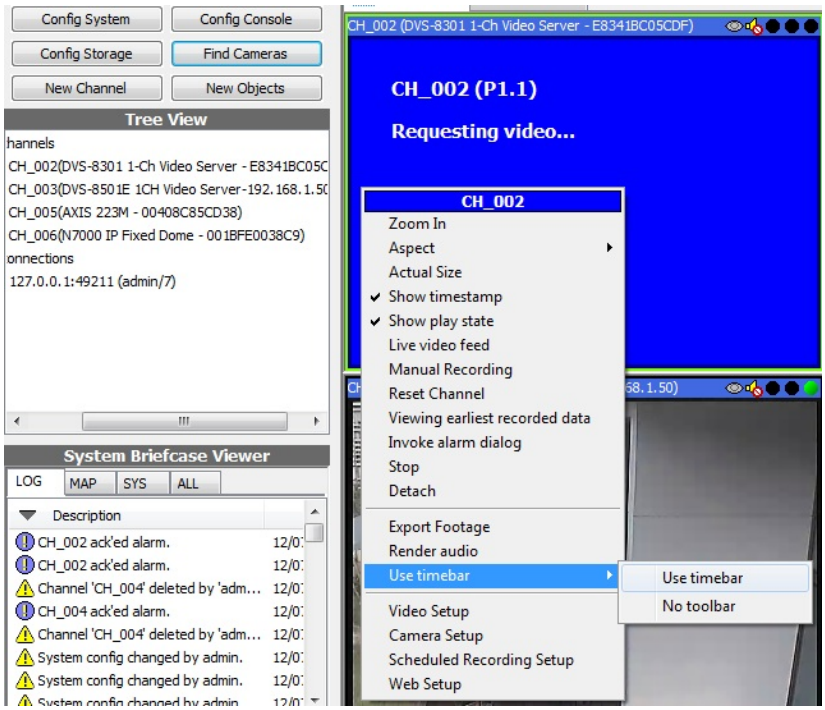
5.2.1 GUI Overview



Before viewing live video, a channel must be attached to a player. To attach a channel, drag it from **user tree**(the red box above) to a **player**(the blue area above). Or double click to auto assign it to an available player.



To switch from playback to live video, click **LIVE** (the left most) in the toolbar. Or when the player is focused, press **ENTER** on keyboard to view live video. Players can be focused by left mouse click on it. You can tell if a player is focused by a green frame around it.



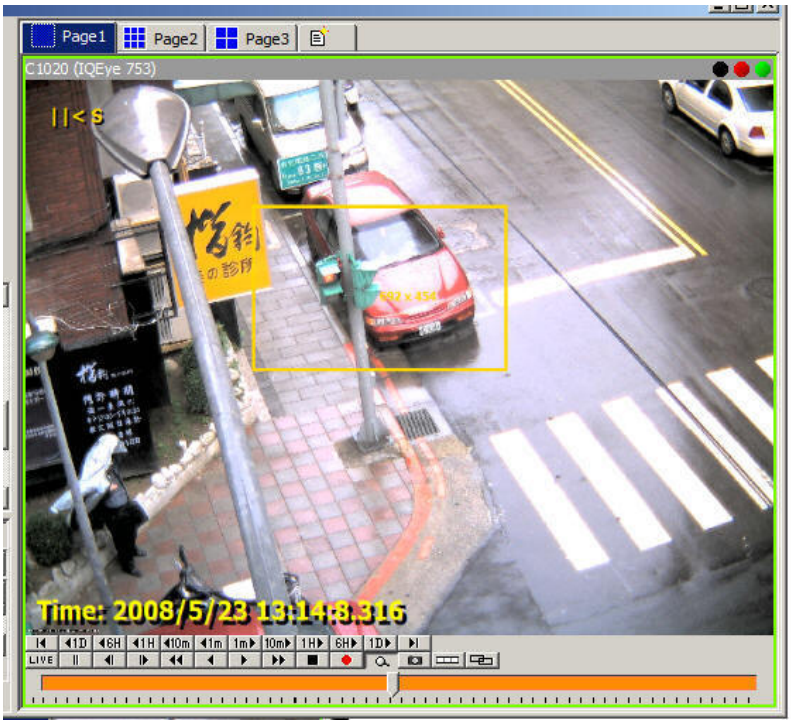
If you cannot see any buttons in players, use the context menu of the player to set the toolbar.

5.3 Digital PTZ

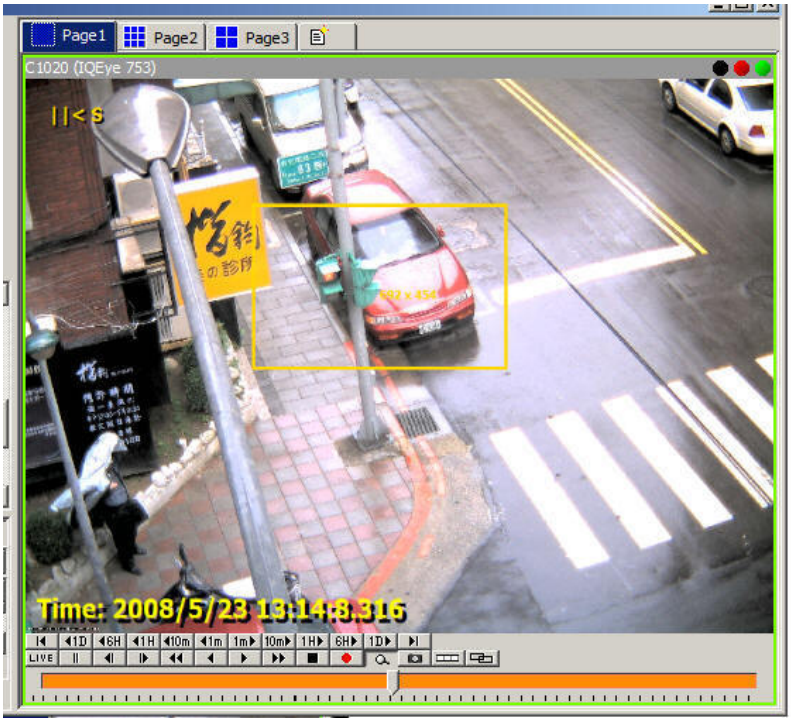
5.2.1 Digital Pan-Tile-Zoom

User can right-click context menu and select "Zoom-In" to drag a rectangular area to zoom-in.

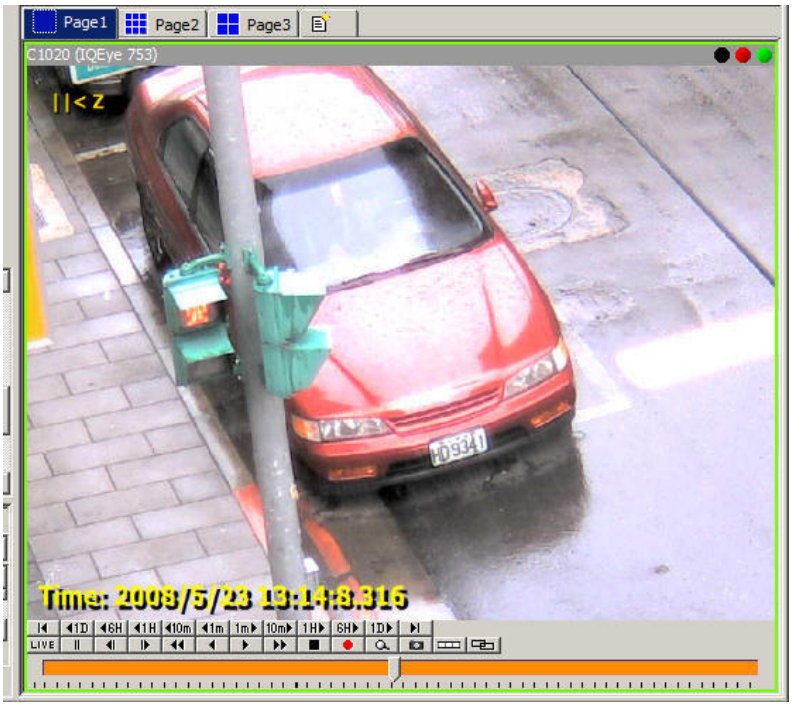
Step 1. Click on the magnifier icon on the player toolbar.



Step 2. Drag to select a rectangular area.



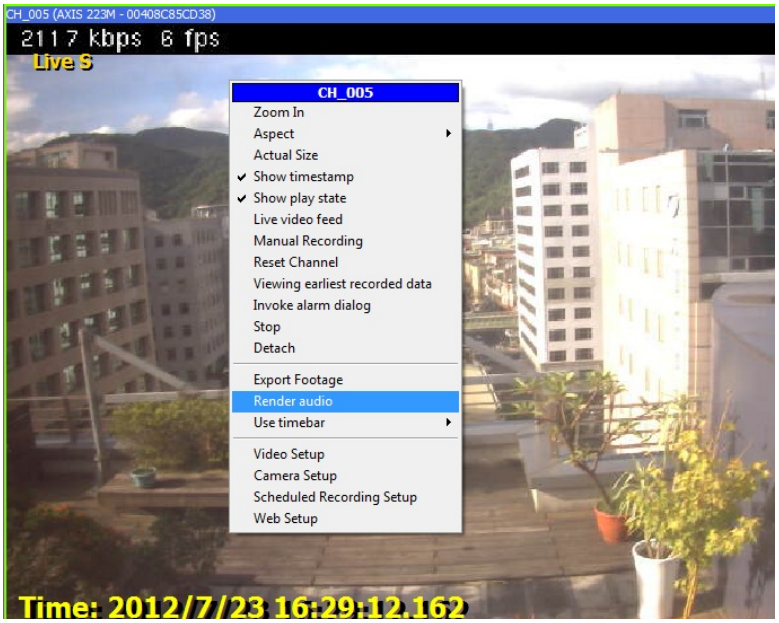
Step 3. Zoomed-in.



Under the zooming mode, user can hold mouse left button down to pan the zoomed area. User can also use mouse-wheel to easily zoom-in and zoom-out interested area quickly.

5.4 Rendering audio

5.4.1 GUI Overview



In the context menu of players, click "**Render audio**" to enable audio. To mute the channel, just click it again. Or click on the speaker icon.

5.4.2 Audio Icon Explained

The channel has audio, and is currently playing.

The channel has audio, but not playing.

Though audio playing is requested, but no audio is available.

Audio playing is neither requested nor available.

5.5 Viewing playback video

5.5.1 Concept

There are several methods to view playback video. You can:

1. Use the toolbar in player. It works just like the buttons on a CD/DVD player.
2. Use player control panel.
3. Use the time bar in player.
4. Use the storage report.
5. Hot keys

5.5.2 Simple toolbar

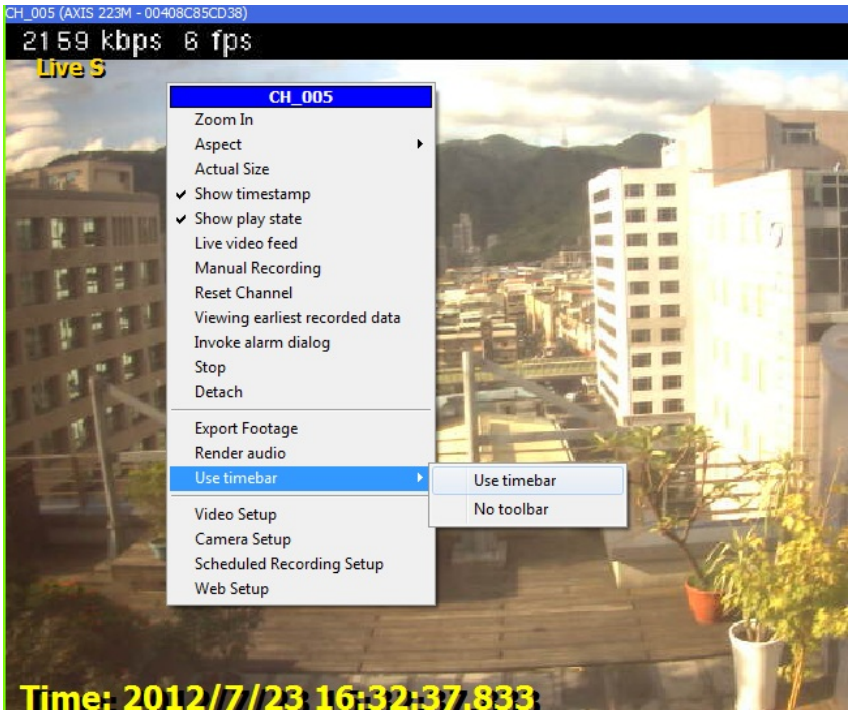
Live view
Pause
Fast backward 2x/4x/8x
Backward playback
Forward playback
Fast forward 2x/4x/8x
Stop
Manual recording
Zoom in
Take snapshot
Open control panel

5.6 Using playback timeline

5.6.1 Overview

A timeline is an integrated tool for both inspecting recorded data and navigating in video playback. The timeline can be configured to show different information of recorded data. User can access the desired data easily based on the information the timeline provides.

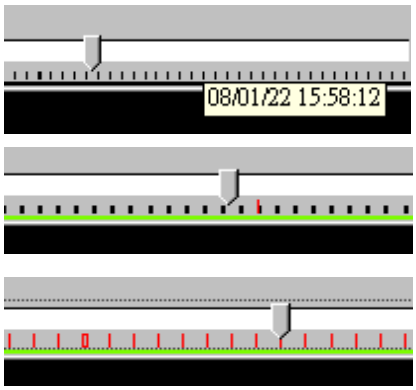
5.6.2 Using timeline



Timeline can be enabled in player context menu.

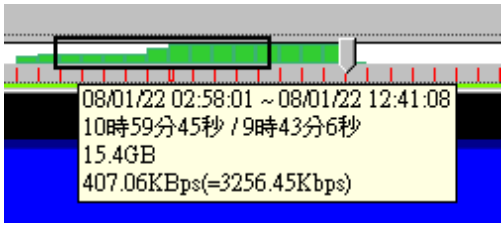
Before timeline can be operated, it must acquire window focus first. To do so, left click on the timeline and a dotted box appeared around the timeline. The user can use the mouse wheel to zoom in or zoom out the timeline. The ruler indicates the scale.

5.6.3 Basic operations

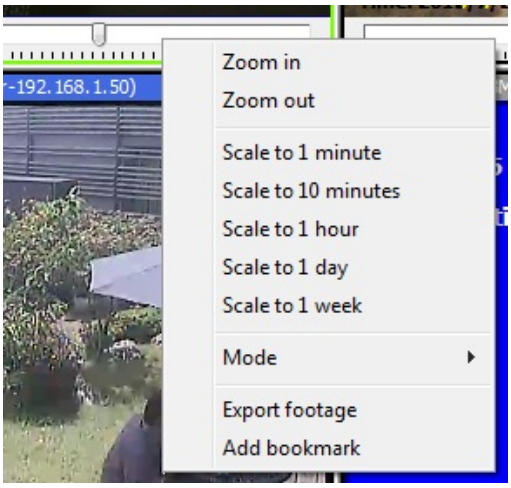


Drag on the ticks to navigate in the timeline (the cursor changes to four-way arrow before you can do this). Use mouse wheel to zoom in/out. The ticks change automatically depends on the scale. You can also hover on the timeline to see the exact time.

There're four types of ticks. The black thin lines are for seconds. Black thick ones are for minutes. Red thin lines are for hours. Red boxes are for days.

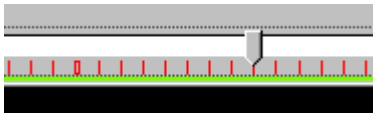


You can also select an interval by mouse dragging in the track bar area. The interval length will be displayed.



Fast navigation are also available in context menu.

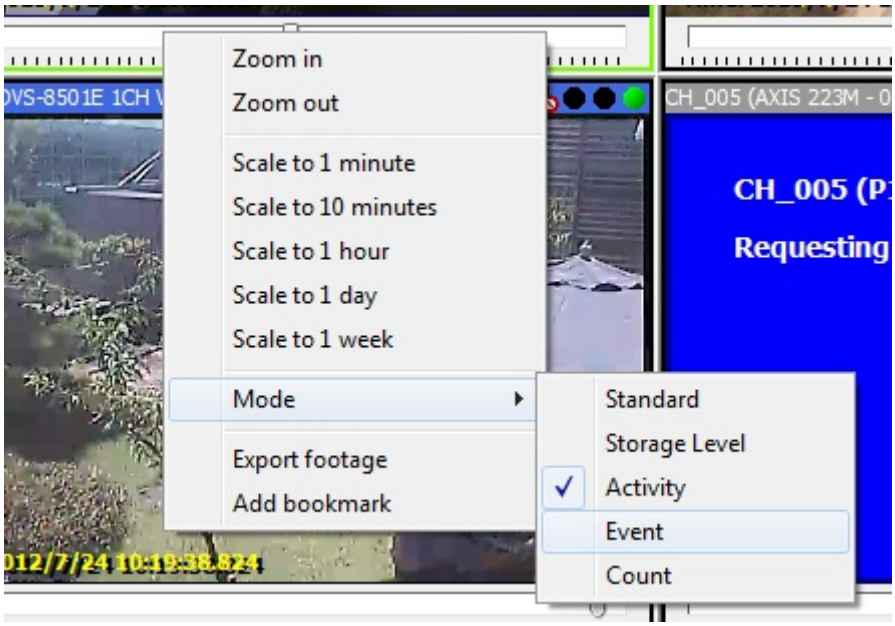
5.6.4 Playback



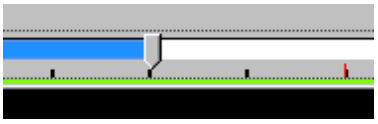
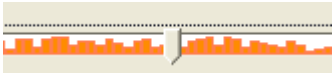
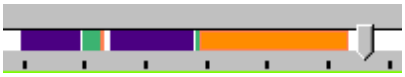
You can double click on anywhere in track bar area of the timeline to jump to that time point, or drag the arrow.

5.6.5 Timeline modes

Please Note: Not all editions of software license has this feature enabled. Check with feature matrix for more details.

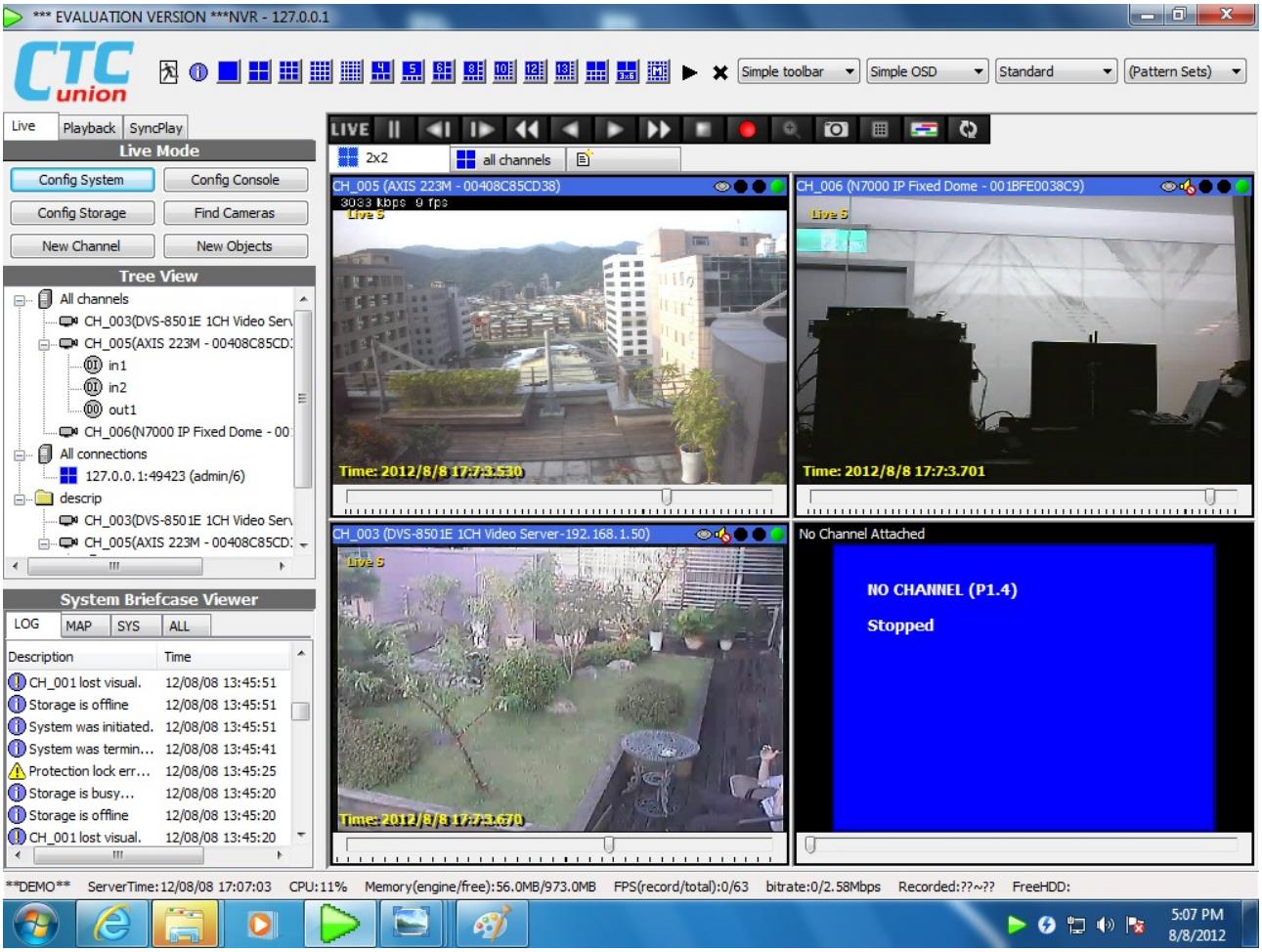


There are various modes in timeline to display different information. It can be set by right click on the timeline.

Standard		Blue area indicates that there are recorded data. White area means there's no recorded data.
Storage level		Green blocks indicate the storage level of recorded data. This is the average of a fixed time span, which depends on the scale of the timeline. In this mode, user can calculate storage by selecting an interval.
Activity		The height of the orange block is the counts of activities in a fixed time span, which depends on the scale of the timeline.
Event		Orange: activity Green: recording Purple: unexpected system off Gray: normal system off
Counting		The purple bar shows the level of tripwire counting. Results of all tripwires in this channel are summed up, including both directions of every tripwire. **See also** Object Tracking

5.7 Synchronized playback

Enable synchronized playback



When synchronized playback is enabled, the play control of all players is synchronized. The video is synchronized to the focused player when playback is requested.

The timestamp of all synchronized channels may not match exactly. Because it's impossible for every channel to have available frame for any given time. This is obvious especially when the frame rate is low.

5.8 PTZ

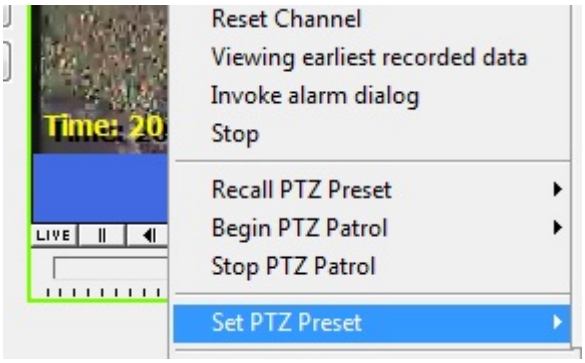
5.8.1 Basic operation

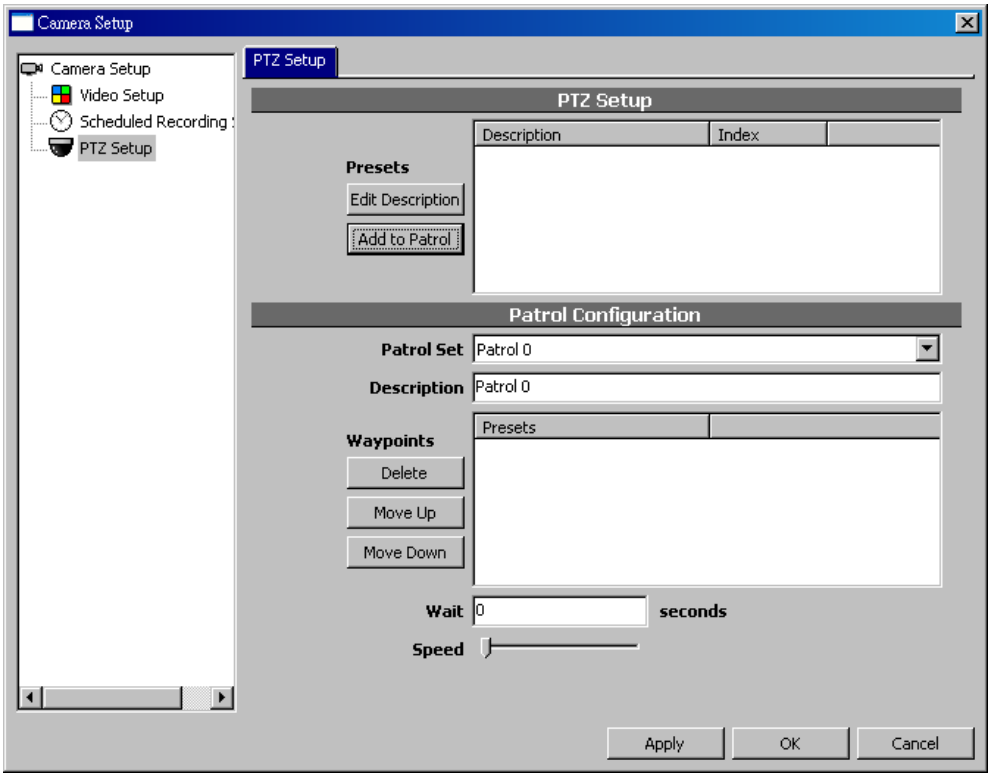
If a channel support PTZ and is attached to a player, users can hold left mouse button on it to start PTZ control. An yellow circle appears when the operation is valid. Hold mouse button and drag to the direction you want the PTZ camera to turn.

A yellow arrow indicates the direction and the speed to turn the PTZ camera. The camera turns faster when the arrow is longer. To stop the camera, simply release mouse button. To zoom in/out, use the mouse wheel.

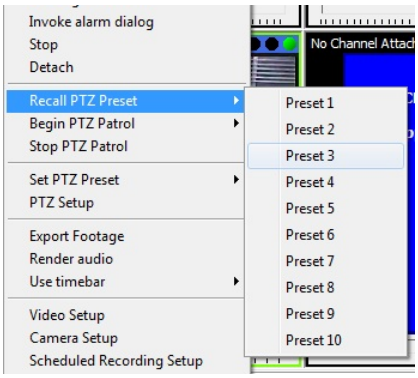
5.8.2 Presets

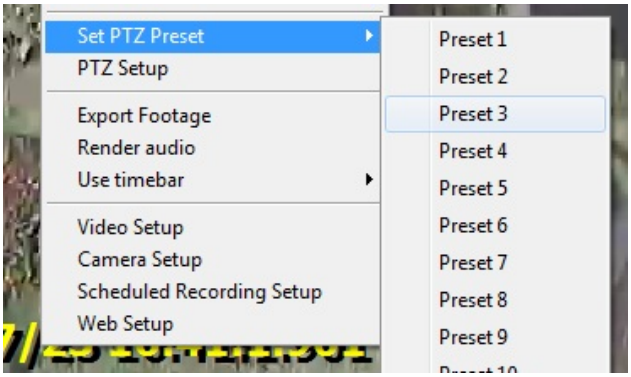
Before you can use presets, you must first configure PTZ configuration. To invoke the configuration dialog, click **PTZ config** in player context menu. If there's no PTZ config item in the context menu, check the video configuration to see if the proper PTZ type is selected. For more information, check **Video Configuration**.





The description can be renamed by clicking on its description. Click **OK** when you done with configuration.

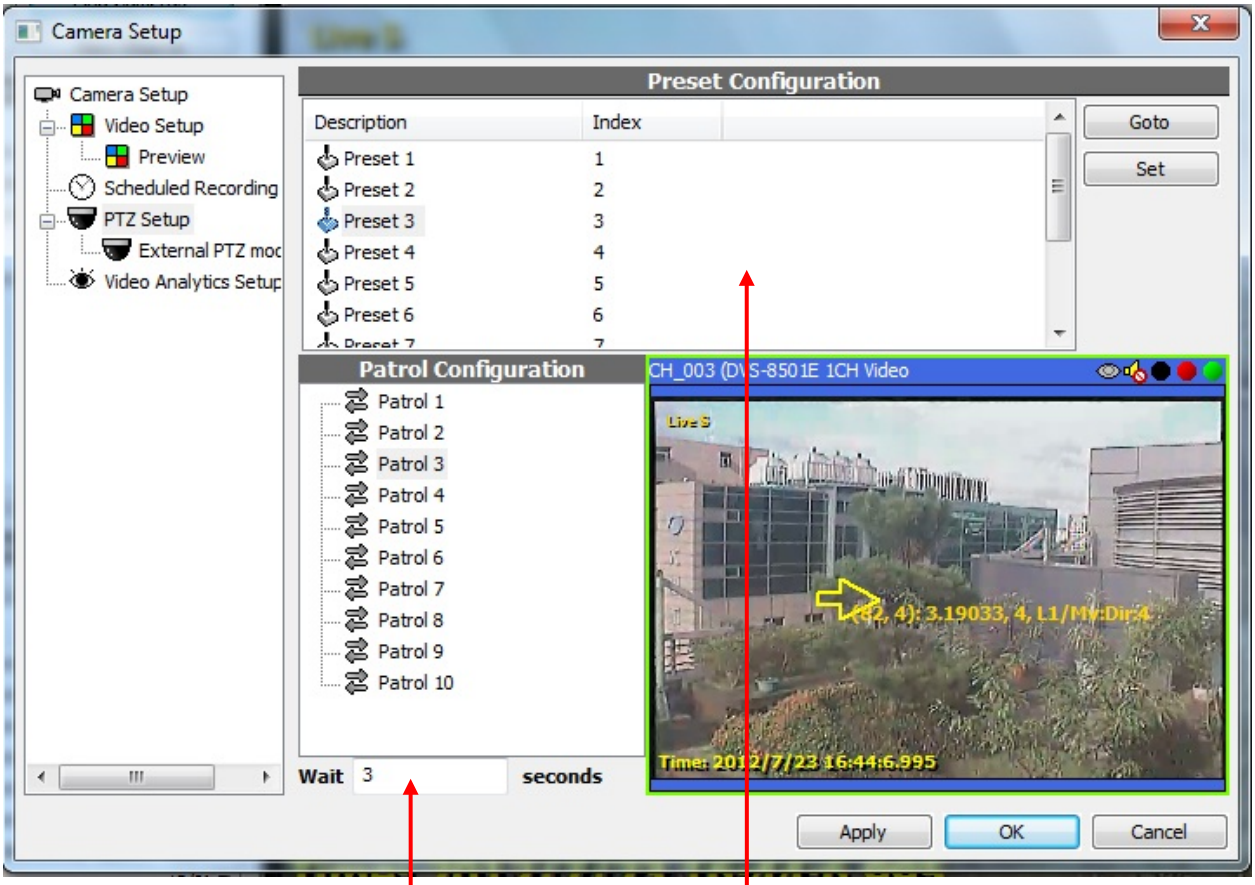




After PTZ is configured, you can use context menu of player to set or recall presets. Or use keyboard **0-9** to recall when the player is focused.

5.8.3 Patrol

Patrol is a list of presets to be called in sequence. You can manage up to 10 patrols in the PTZ dialog.



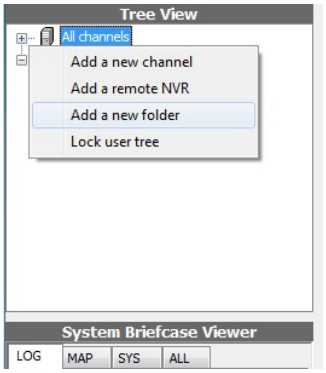
The interval and speed of patrol can be set.

To add a preset in the patrol, drag it from **Preset List** and drop it in **Patrol**.

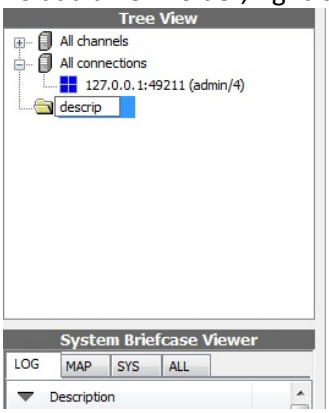
<NOTE> PTZ functionality is limited by the actual specs and SDK support of the hardware. Not all models support the functions mentioned above.

5.9 Building user tree

Add/edit folders

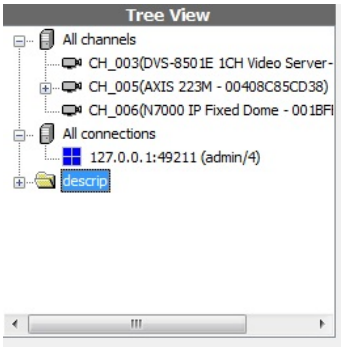


To add a new folder, right-click on blank area and click **Add a new folder**

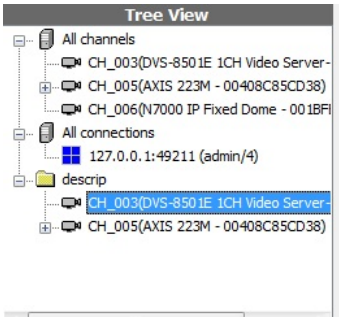


To edit folder description, click it again when it's already selected.

Add/edit tree items



To create a channel representative in user-created folder, drag a channel from folder **All channels** to the destined folder.



To change the order of items, drag and drop it in the tree.

5.10 Taking snapshot

To take a snapshot, click the camera button in the player toolbar. A message will be poped if the snapshot is taken.

5.11 Managing layout pages

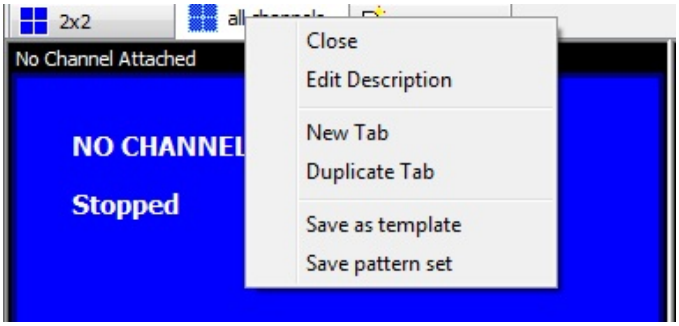
Overview

A page is a set of players with its own layout settings and player states. Each page is configured separately and will not affect other pages. Users can create multiple pages and configure them for management purposes. For example, you can create a page named it "all channels". Switch its layout to 4x4 and attach 16 channels in it. And then create another page named "map". Switch it to 1x1 and open a map. Then you can switch between the two pages easily without open multiple windows or applications.

Add a new page

Click on the right most tab button to add a new page.

Editing pages



User can **create, remove, and rename** tabs in pattern tab control. Each pattern tab has its own layout and state. You can also drag the tab to change the order of the pages.

5.12 Tour

Design tour phases

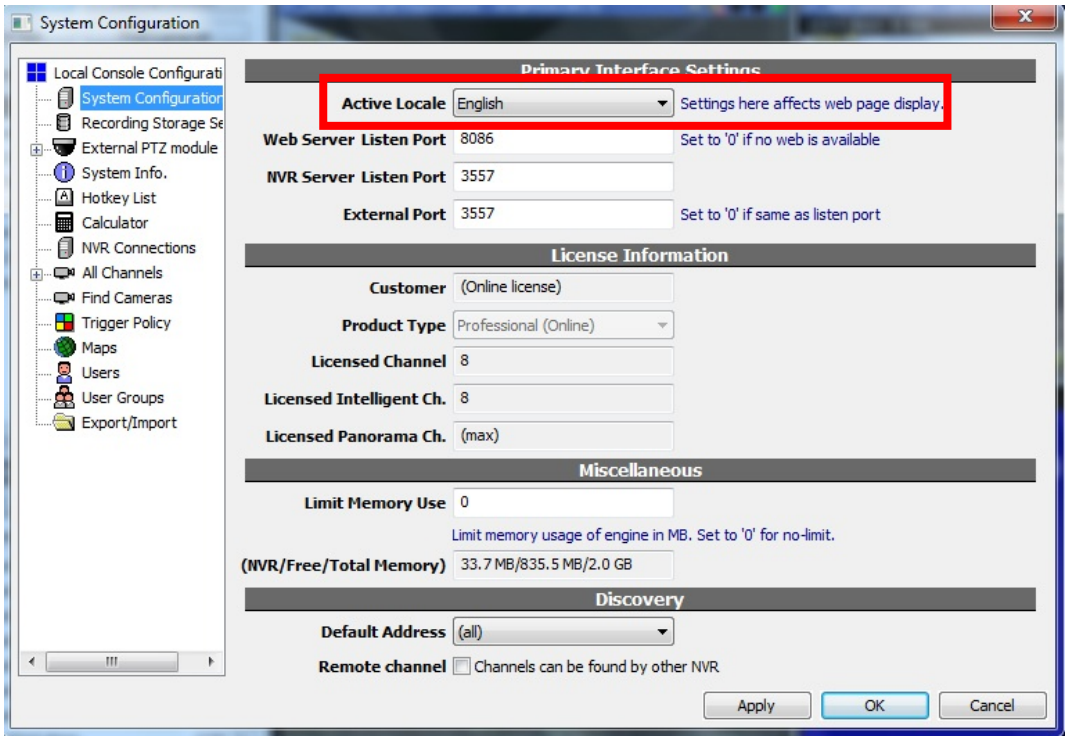
You can use tab managing functions to create pattern pages and properly order them as the actual tour required.

Activating/stopping tour

Press **F11** to toggle activating or stopping tour.

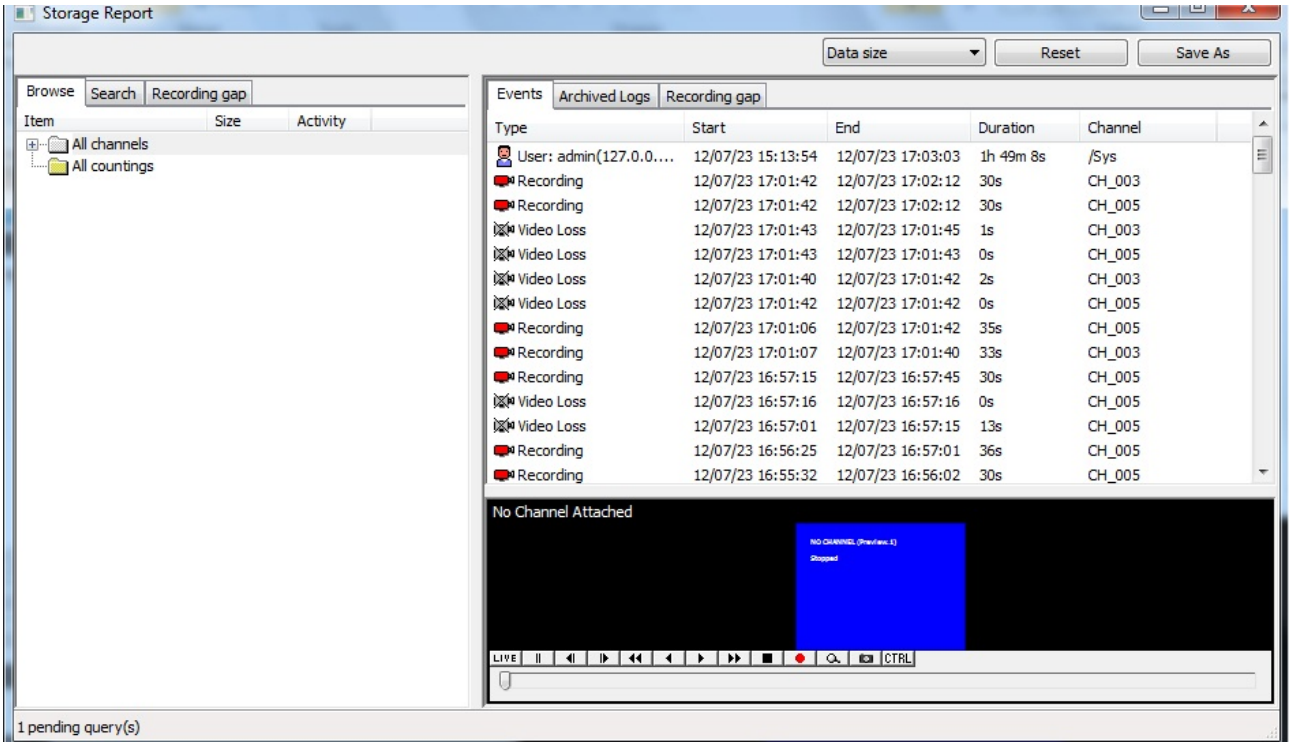
Configuring tour interval

Open the local console configuration dialog.

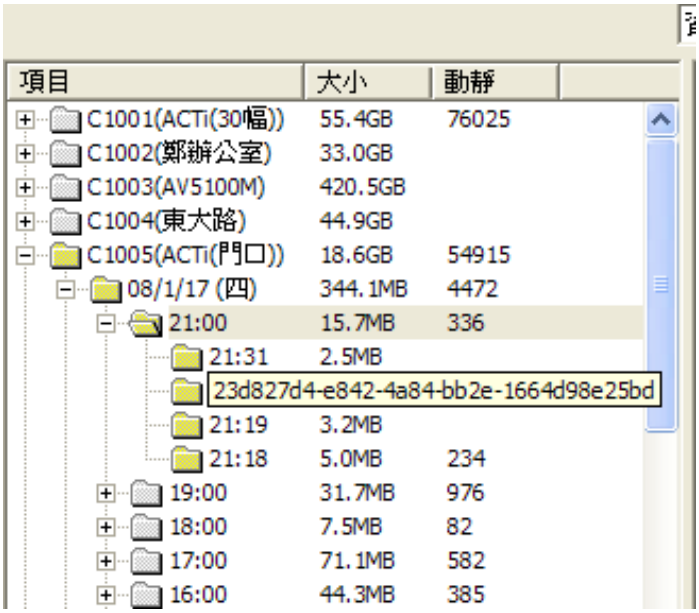


5.13 Storage Report

GUI overview



By using the sub nodes of the root nodes, you can easily explore recorded video in the scale of days, hours, or minutes. The second column indicates the size accumulated of the item. The third is called the activity indication value. If this value is larger than more activity has happened during that period.



Event viewing

At right panel you can view the related events to the selected period of time. If you wish to examine the video of a specific event, you can either double-click the event to let an idle player to play it. Or that you can drag it to a specific player to play it.

Data size / data rate

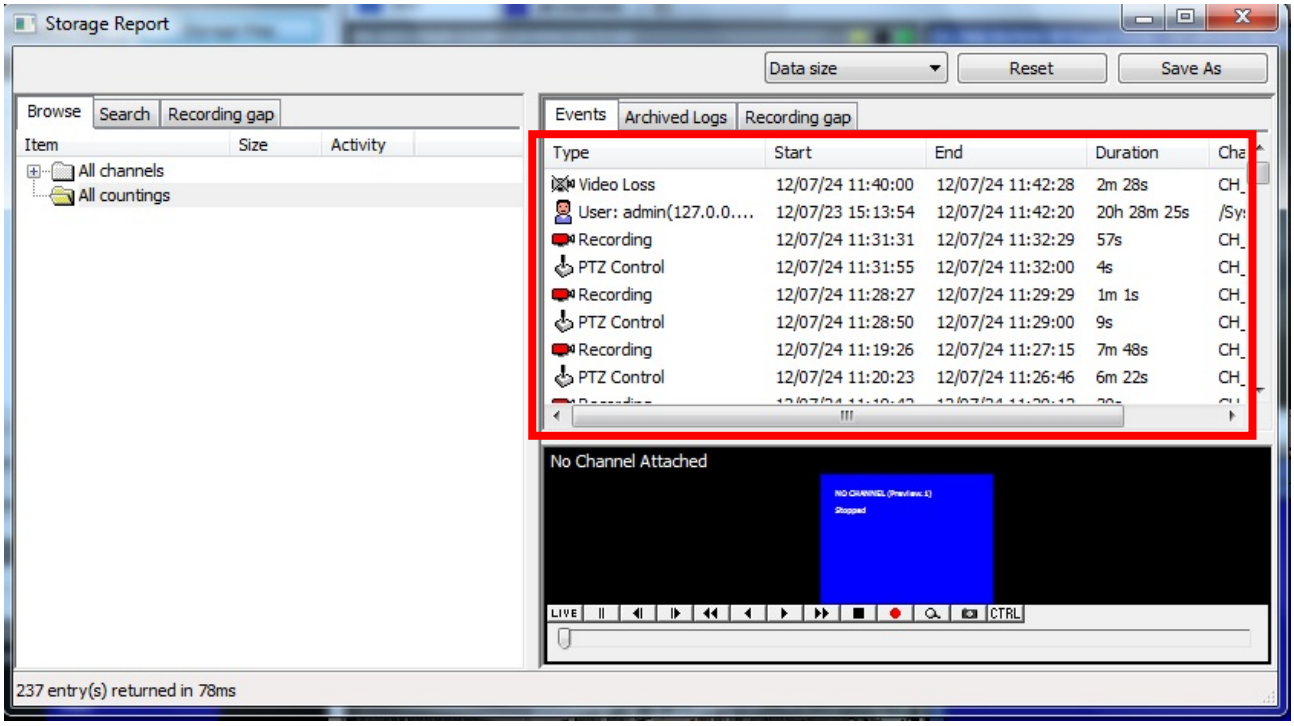
Through the selection of the combo-box you can also change between viewing data size and data rate

Resetting

After a long period of time of last query, or that the storage report stop refreshing latest data, you can click the "Reset" button to retrieve updated information.

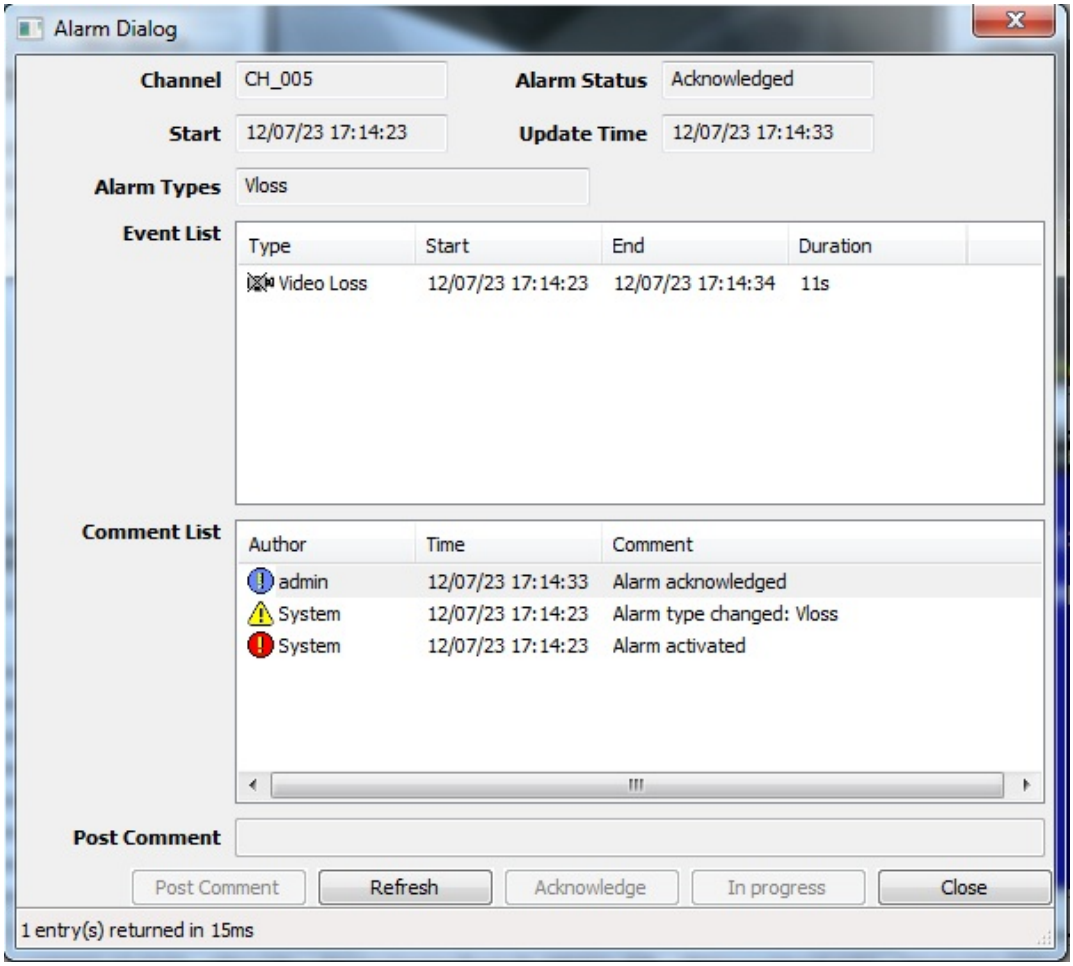
Intelligent Video Report

If one has properly configured intelligent detection (for example: double-tripwire counting), you can see additional nodes below the **All Channels** node. Try to open it to see detailed intelligent video report.



5.14 Alarm Dialog

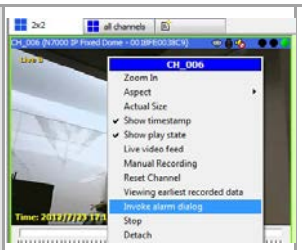
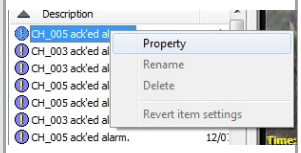
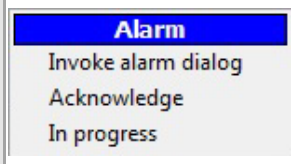
GUI Overview



Concept

Alarm dialog provides the information of an alarm instance, which may consist of one or more alarm events. For each channel, there's always only one active instance. Any new alarm event is appended to the active instance. And the instance is deactivated once it's acknowledged. Inactive instance can no longer be modified, by user or by system. For active instance, user can change its state or post comment.

Open Dialog

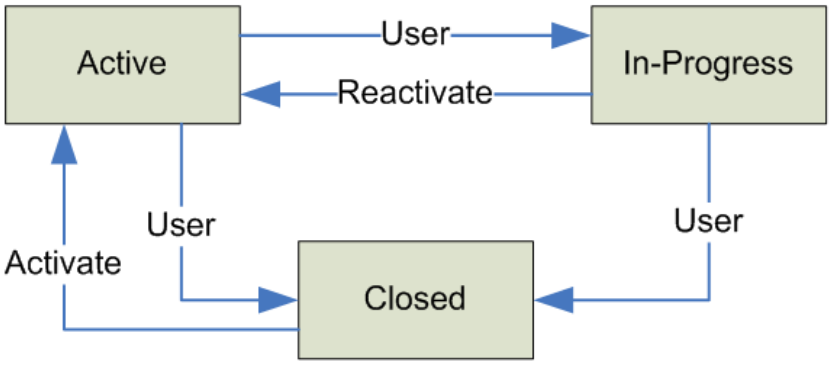
Player		Use player context menu and select **Invoke alarm dialog** of player or press key "A".
Briefcase Viewer		Use context menu of an alarm instance in briefcase viewer. Or use left-click menu if it's active.
Map		Left click on a channel with active alarm instance, in internal or external maps.

Alarm Types

Vloss	Video loss
Tripwire	Tripwire crossed
Foreign	Foreign object detected
Missing	Missing object detected
Tamper	Tamper detected (e.g. lose focus, spray, occlusion...)

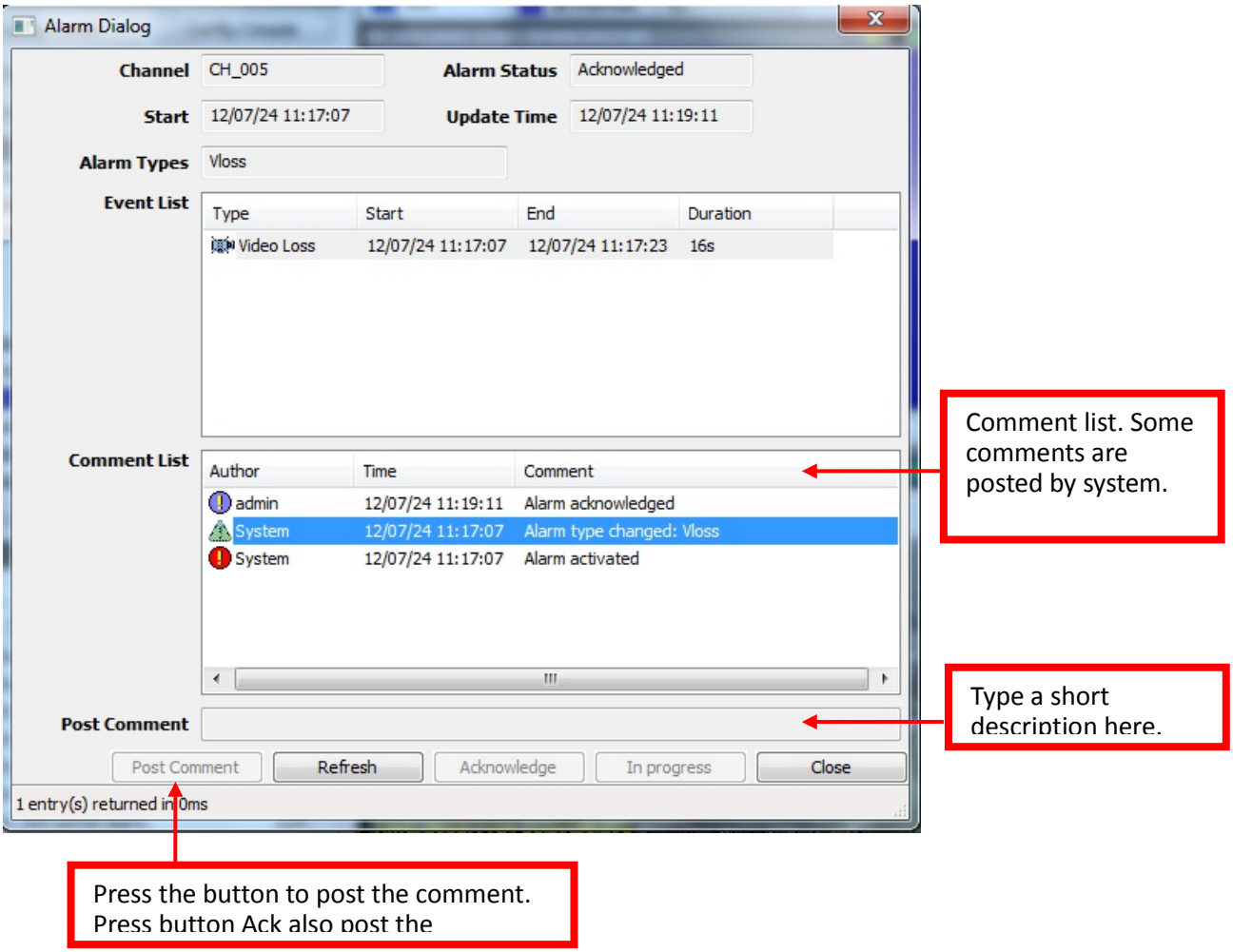
Alarm State

Active	Alarm is new and active
InProgress	Alarm is in progress. New alarm will reset the state to **Active**.
Acknowledged	Alarm is acknowledged and closed.

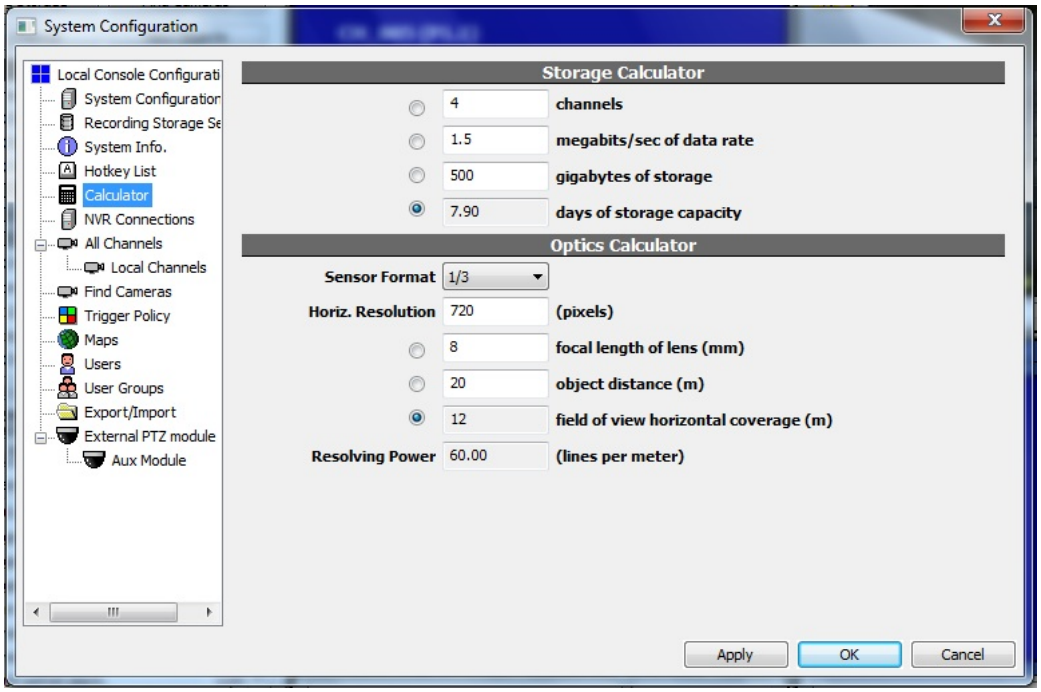


Post Comment

User can only post comment of active or in-progress alarm instance.



5.15 User Calculator



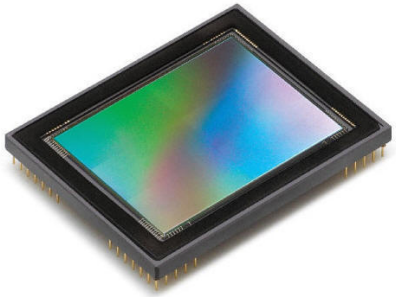
Storage Calculator

Users can input any 3 of the 4 variables. And the checked field will be calculated using the parameters provided.

Optics Calculator

For any calculation, sensor size and horizontal resolution of the camera must be provided. Please refer to the manufacturer's spec sheet of the camera. The user can provide 2 of the 3 variables; lens focal length, object distance, and horizontal coverage. The checked field will be calculated using the provided variables.

Sensor size

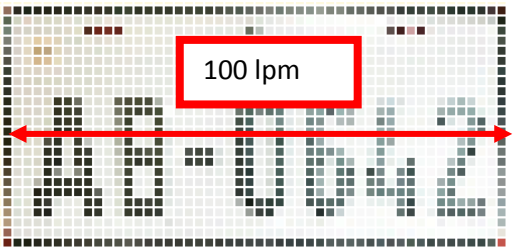


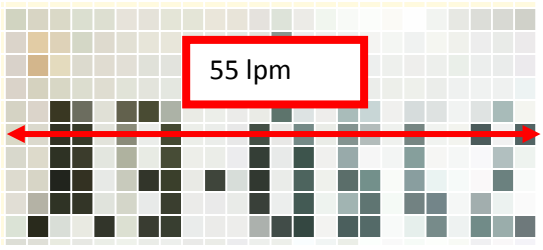
Please refer to the spec sheet provided by the camera manufacturer.

Horizontal coverage

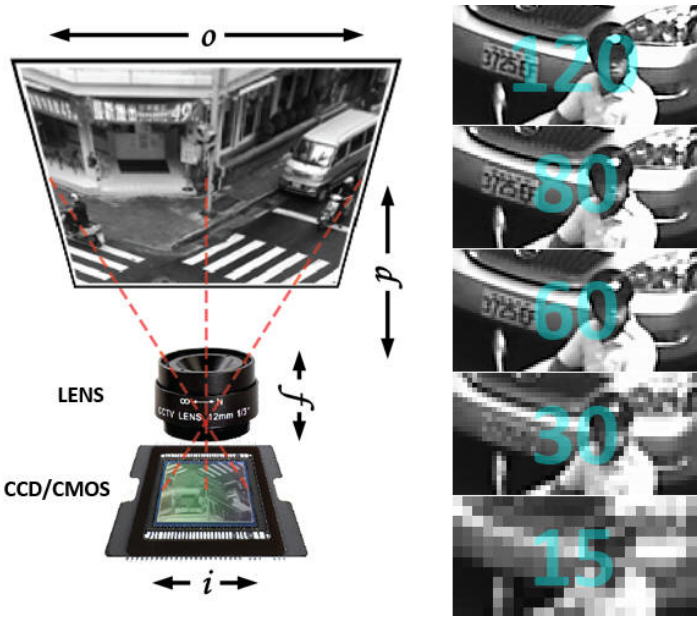
You can input lens focal length and object distance to let the system calculate the coverage, or vice versa.

Resolving power





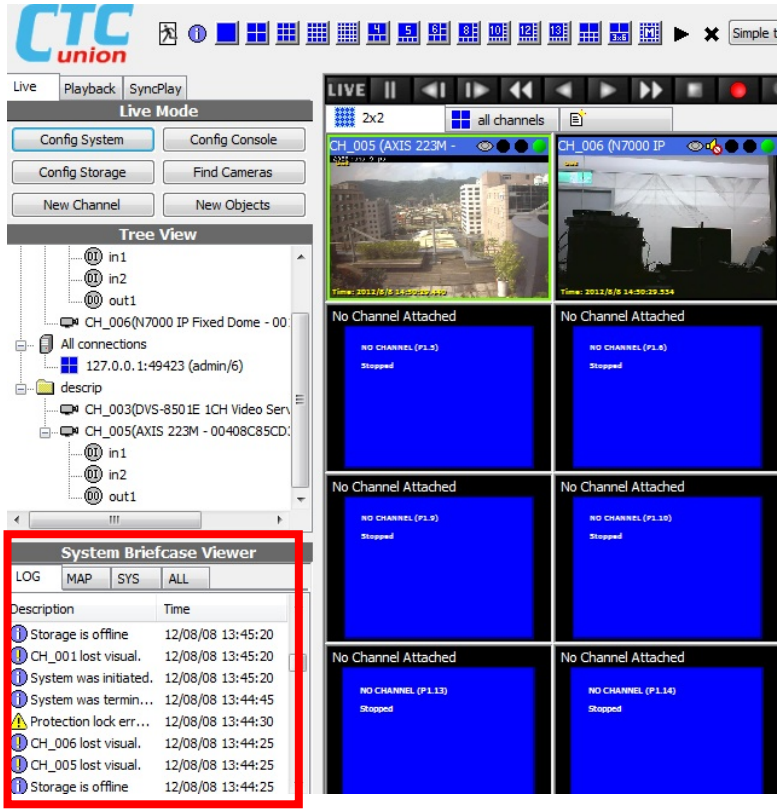
Resolving power is a measurement of how many details can be seen in real world. The more the resolving power is, the easier to identify the object. It can be used as a reference to determine if something can be identified or read. For example, about 100 lpm (horizontally) minimal is required to read car license plates. However, the value is just for reference as there're other factors affecting image quality as well. For example, weather, shutter speed, and focusing.



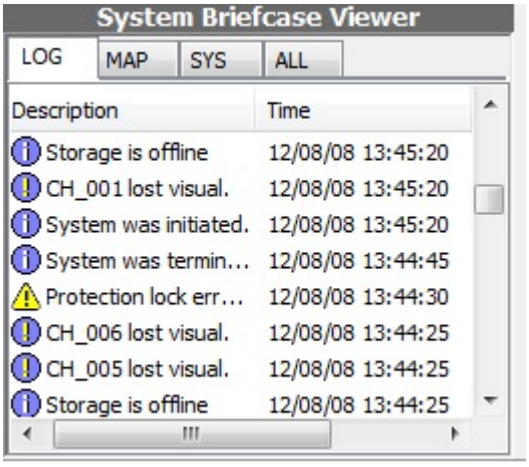
o	Width of field of view(in meters)
i	Sensor horizontal resolution(in pixels)
d	Object distance(in meters)
f	Focal length of lens(in mm)
i/o	Resolving power(lpm, vertical)

5.16 Viewing logs

GUI Overview



Logs can be browsed in **system briefcase viewer**.



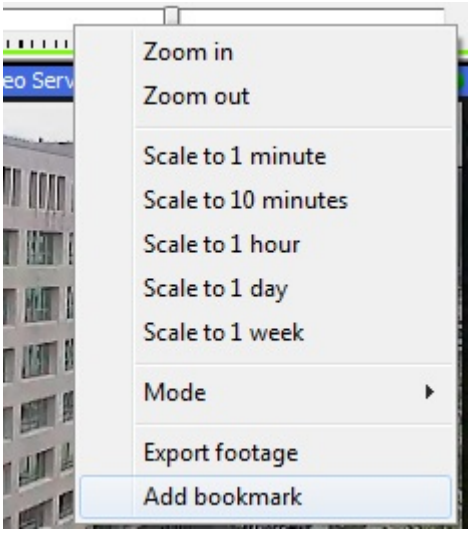
To make it easier to read, click on the tab to show certain types of items only.

See also Console overview (System Briefcase Viewer)

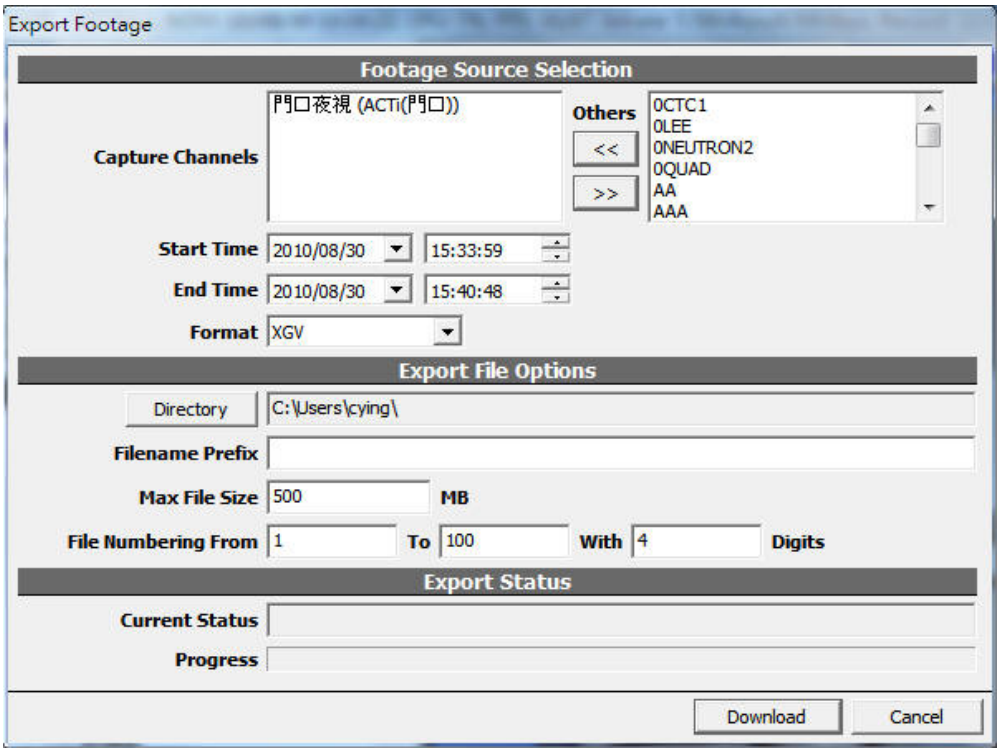
5.17 Exporting Footage

Using timeline

When a time interval is selected in timeline, export footage dialog can be invoked in its context menu to export the selected time interval.



The dialog

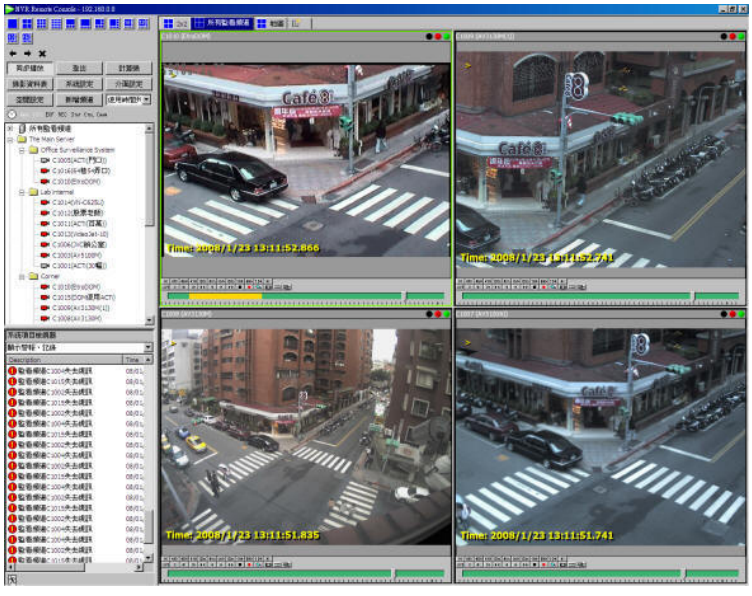


Field	Additional Description
Capture channels	The left list is the channels to be exported and the right are the available channels. CTC Union NVR support multi-channels exporting.
Start time	
End time	
Format	XGV is CTC NVR's proprietary format. Select AVI if you wish to play the video in other video players. No player is guaranteed to be able to play the exported video as codec installed on a computer varies. For a list of audio/video codecs supported in AVI export, please refer here.
Directory	
Filename prefix	
Max file size	If the exported data exceed this limit, it's divided into multiple files. When using storage media with small space such as CDs or floppy disks, this must be set.
File numbering from	If exported data is to be divided using Max File Size, the files will be named as a sequence. You can also fix the length of the filename by setting the digits. For example: with 4 digits, the files will be named as prefix0001, prefix0002, prefix0003...
Current Status	Indicates if the exporting is started, paused, or cancelled.
Progress	

See also AVI-Export Supporting Information

5.18 Hot Keys

Enable hot keys



To enable hot keys, you must first focus on a player. To do so, left click on the player you want to operate.

Basic operation

↑(Up arrow)	Move player selection up
↓(Down arrow)	Move player selection down
←(Left arrow)	Move player selection left
→(Right arrow)	Move player selection right
~	Select first player
-	Play slower (/2)
=	Play faster (*2)
Enter	Live
Space	Pause
[	Playback backwardly
]	Playback forwardly
<	Backward step
>	Forward step
Insert	Take snapshot
F8	Toggle player control panel
F10	Toggle full-screen
F11	Toggle tour
F12	Toggle operator-lock

PTZ

1-9, 0	Recall preset
Ctrl + 1-9, 0	Set preset
Ctrl + ←→↑↓	Pan, tilt
Ctrl + Page Up	Zoom in
Ctrl + Page Down	Zoom out
Ctrl + Home	Focus far
Ctrl + End	Focus near

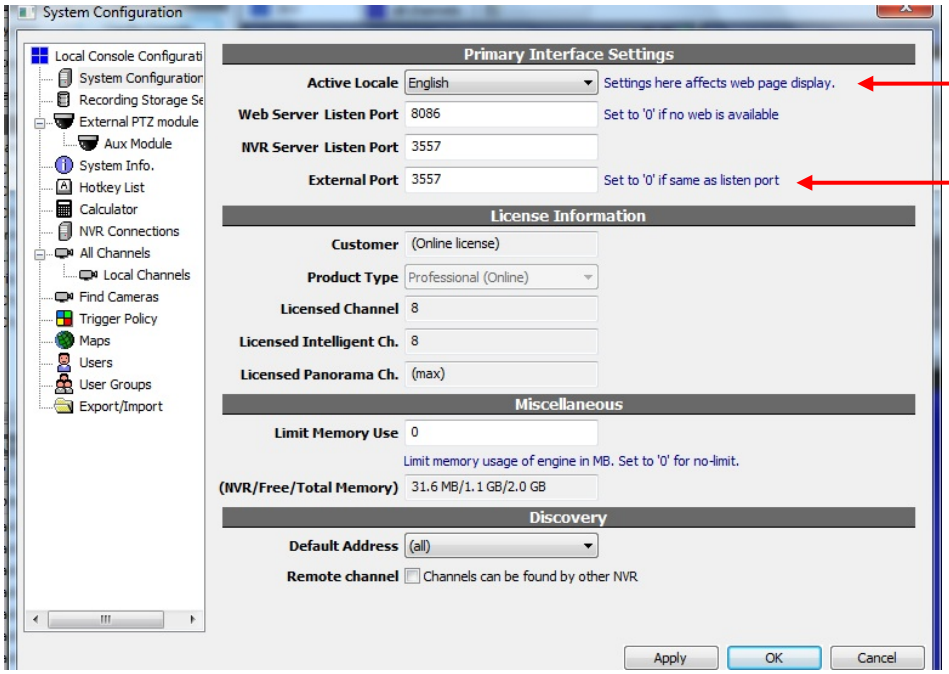
5.19 Remote live viewing

Synopsis

CTC Union NVR provides a built-in web server to provide authorized and licensed remote user to view live video through Internet Explorer.

Configuring web server

Open the system configuration dialog box.



Here you can select web server language.

Here you can configure built-in web server listen TCP port

Default built-in web server listen port is 8086. If you configure the listen port to zero ("0"), the web server will be turned off.

Attention: Used TCP Ports

Please be noted that to make the remote live video web viewing, you are required to properly configure your firewall, if any. Two ports are needed. One is web server port, the other is NVR communication port, which defaults to 3557.

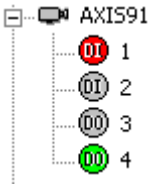
Broadcasting integration

When a vendor is properly licensed with CTCLiveX SDK (by signing the "SDK Licensing Terms" document), he could integrate the provided ActiveX control into customized web pages to provide live audio-video broadcasting services.

If further information about SDK is required, contact us for more information.

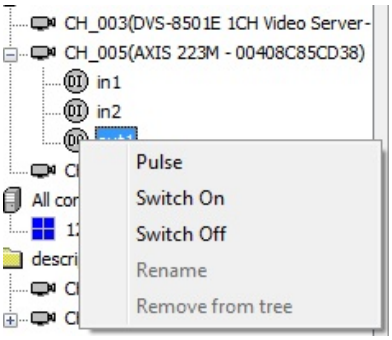
5.20 IO Port

GUI Overview



To access **IO ports**, expand a channel node in **User Tree**. Gray nodes are inactive ports. Red ones are active input. Green ones are active output. If a node is un-expandable, it does not support IO ports or it is not configured properly.

Control

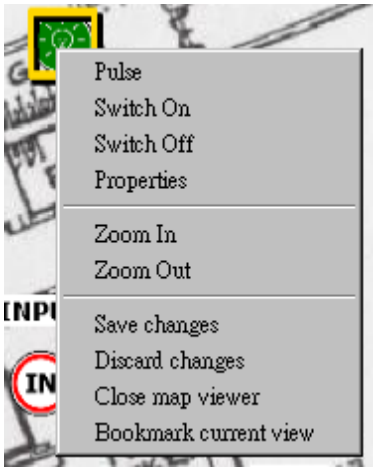


To control IO ports, right click on it to access the menu. Input ports cannot be controlled in the NVR system. They are connected to physical input devices such as switches, sensors... etc.

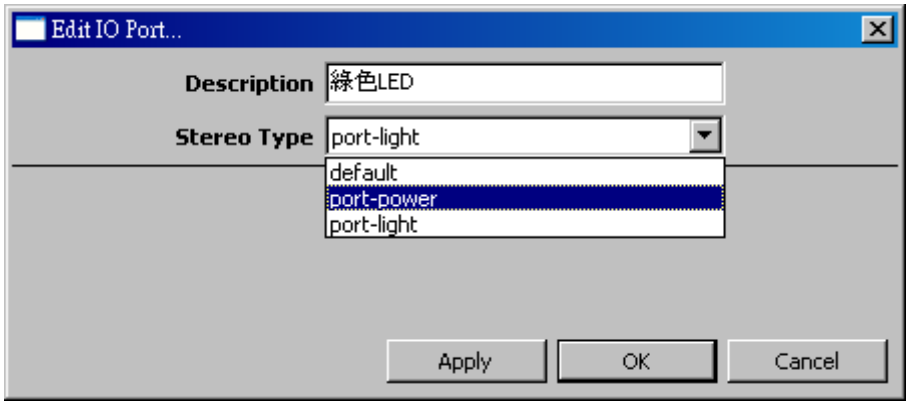
Pulse is a sequence of repeated on/off send to the port. Literally the controlled device will blink for few seconds. The final state is off.

IO Ports in Maps

To add an IO port in map, drag it in map and release.



Use context menu to control the port.



The description and icon can be edited in the property dialog. The change is only applied to the selected map item, not every item/node representing that port.

5.21 Player Control Panel

Concept

Player control panel is an integrated controller to control the currently focused player. Press F8 key or click the CTRL button in the player to open the player control panel.

For more information about **player** and **focused player**, see also

Play Control

Pause	Step backward	Step forward	Fast backward 2x/4x/8x	Fast forward 2x/4x/8x	Backward playback	Forward playback
Live view	Stop	Manual recording	Take snapshot	Frame skip mode		
View earliest recorded data	Jump backwardly for 1 day	Jump backwardly for 6 hours	Jump backwardly for 1 hour	Jump backwardly for 10 minutes	Jump backwardly for 1 minute	
Backwardly playback latest recorded data	Jump forwardly for 1 day	Jump forwardly for 6 hours	Jump forwardly for 1 hour	Jump forwardly for 10 minutes	Jump forwardly for 1 minute	

PTZ Control PTZ

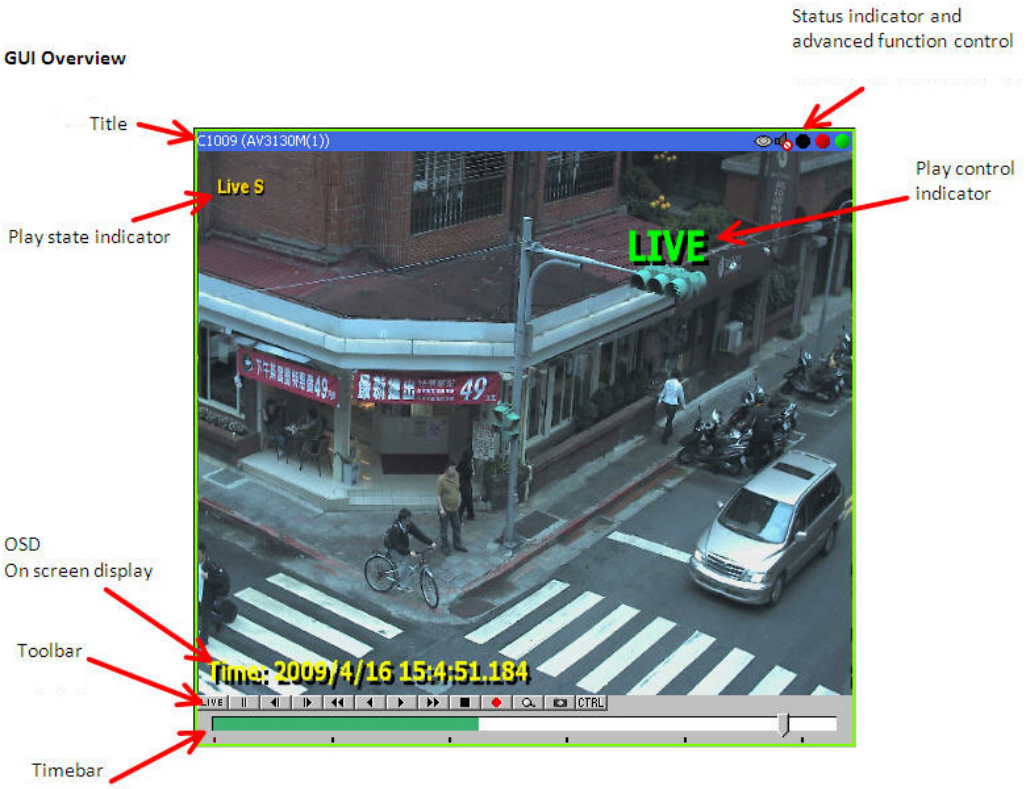
Only available for channels with PTZ support.

Zoom in optically	Focus Far	Aperture Open	Stop
Zoom out optically	Focus Near	Aperture Close	

Editing Regions

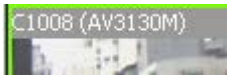
Save changes	Discard unsaved changes	Open region properties dialog	Remove selected region
Add a new rectangle	Add a new polygon		

Player



Title

Displays the name and description of attached channel/map. The background color indicates the status.

	Channel live view
	Map is loaded
	Channel playback/Map is loading
	Nothing is attached
	Map is changed and not saved
	Blinking: Active alarm Static: Alarm in progress

Play state indicator

Live	Live view
||<	Pause, backward play
>||	Pause, forward play
<	backward play
>	forward play
<<	Fast backward
>>	Fast forward
E	End of recorded data
AZ	Actual size, zoomed
A	Actual size
Z	Zoomed
S	Stretched
C	Cropped

OSD

Display the video time, resolution, and frame rate. Depends on OSD setting selected.

Toolbar

In local **console setting dialog**, you can configure the size and style of the toolbar buttons.

Small buttons	
Large buttons	

Live video	Pause	Step Bkwd	Step Fwd	Fast Bkwd	Play Bkwd	Play Fwd	Fast Fwd	Stop	Record	Zoom	Snapshot	Control panel

See also Player Control Panel/Viewing playback video/Taking snapshot

Timebar

See also Viewing playback video/ Using playback timeline.

Status indicator

Intelligent video	Render audio	Accessing disk	Recording	Video streaming

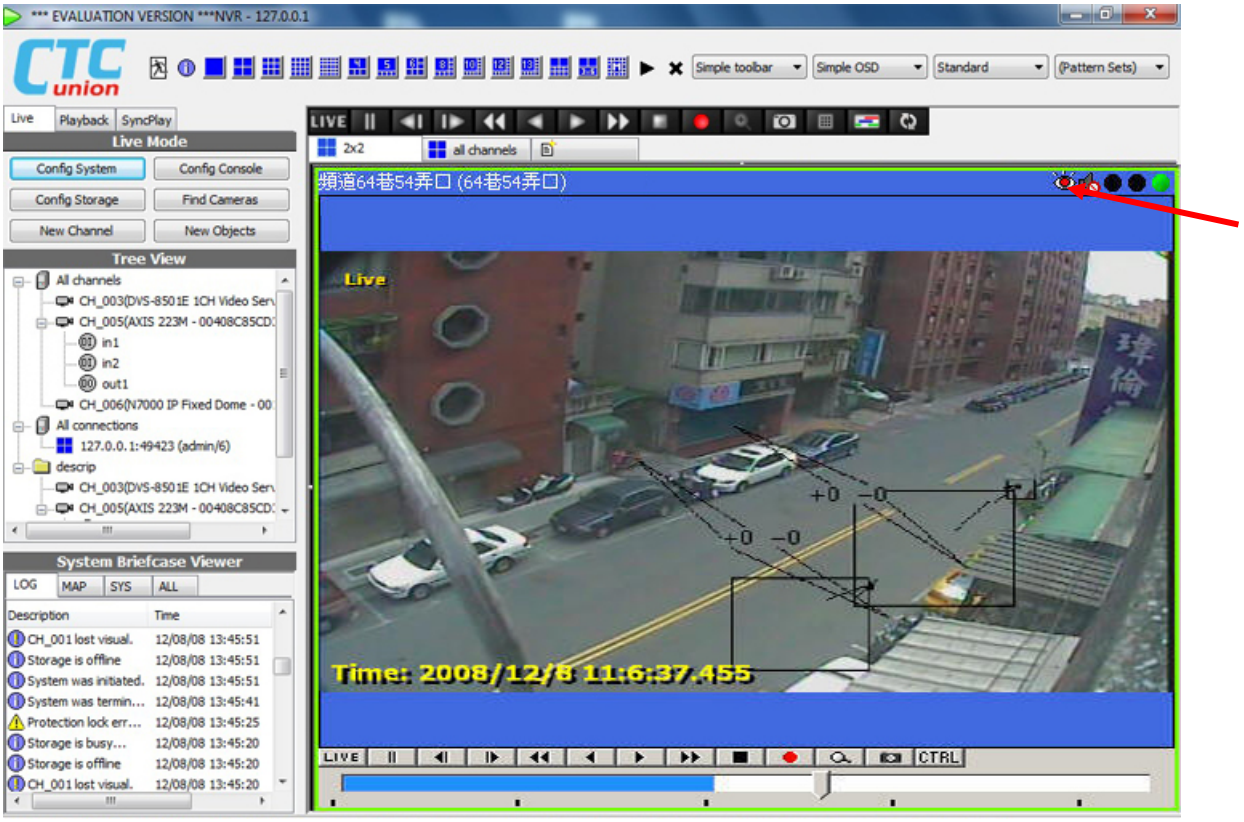
See also Rendering audio / Activating Intelligent Detection

Chapter 6.
Intelligent Video

6.1 Activating Intelligent Detection

Activating/Deactivating Intelligent Detection

If you wish to start intelligent detection, you need to activate the detection mechanism in addition to proper configuration. This step is necessary since detection consumes client CPU resource.



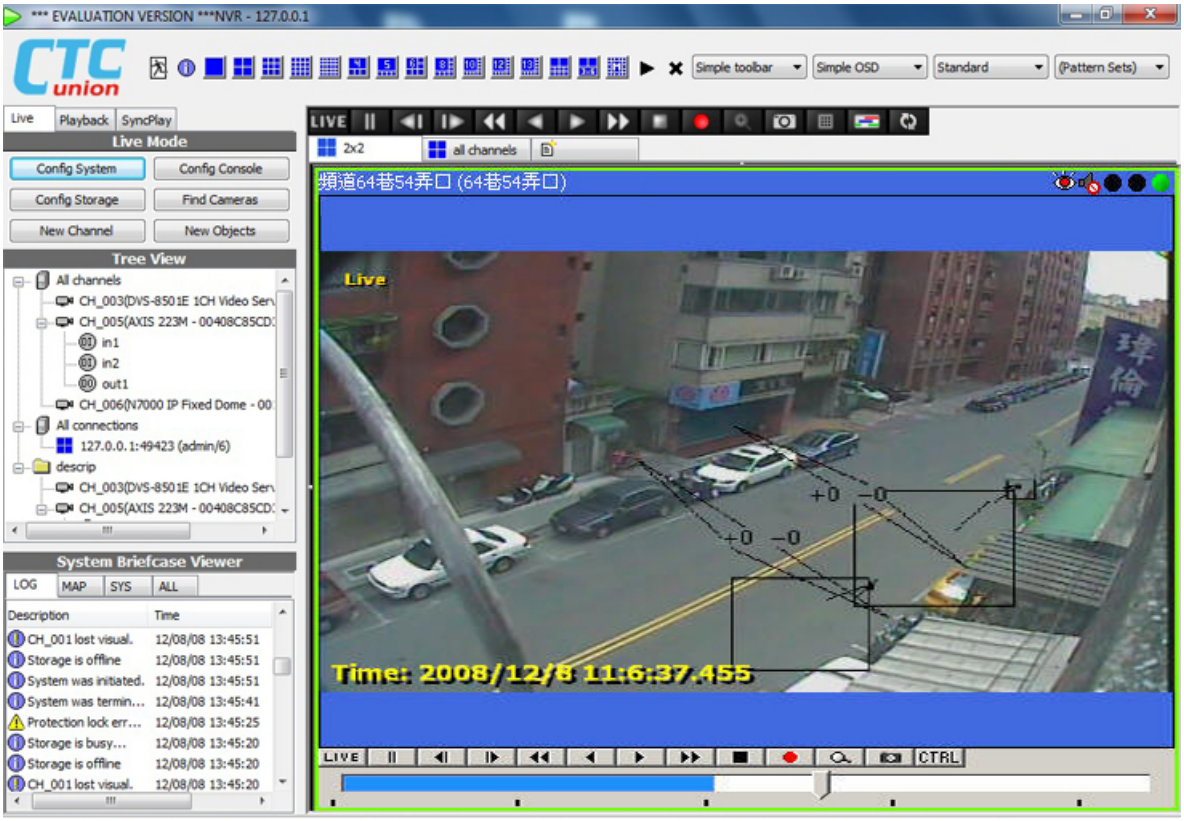
Icon semantics is as follows:

- Channel is not detecting
- Channel is detecting locally
- Channel is not detecting locally, but has been activated for detection somewhere else

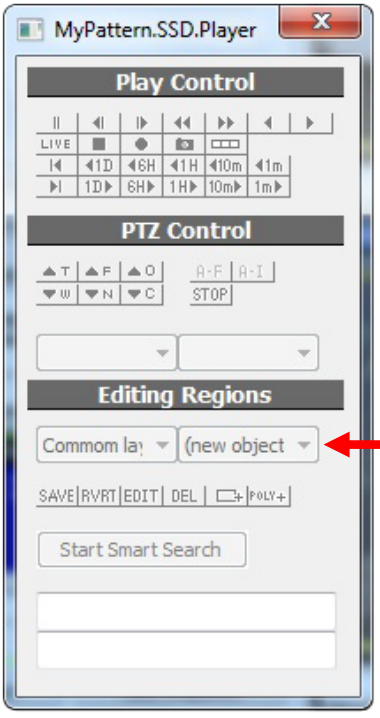
6.2 Region Configuration

Understanding basic region configuration

To configure regions, you need to invoke "Player Control Panel" first. There are two ways of doing this (1) You can click the "CTRL" button on player toolbar, or you can press F8 on the selected player.



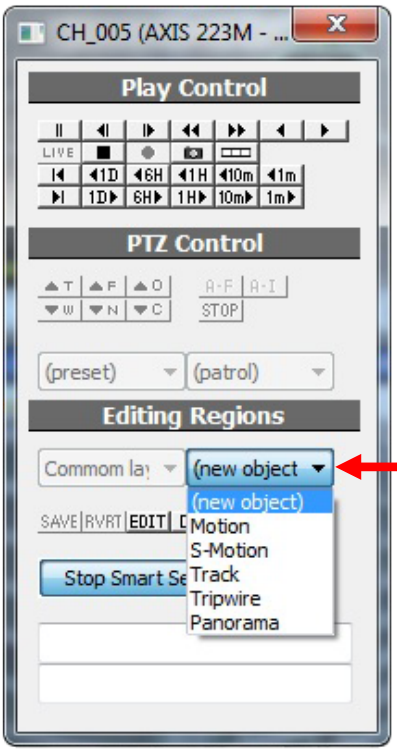
Following window will appear:



Here you can choose to show/hide a specific layer. Layering is needed when configuration is rather complex, and is offered for user for a clearer visual experience.

Now to explain the "Player Control Panel" functions:

Button	Description
DEL	Deleted selected object.
EDIT	Edit function object properties.
RVRT	Restore the modified region configuration into last saved one.
SAVE	Save current region configuration.
POLY+	Add polygon region object.
	Add rectangular region object.



If you wish to add tripwire object or other function objects, use "new object" combo-box selection menu.

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